Wireless 11g Broadband Router

User's Manual

Version: 1.0

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Revision History

Version	Date	Notes
1.0	June 28, 2004	Initial Version

1 Introduction

The Wireless 11g Broadband Router, based on the cutting-edge IEEE 802.11g wireless technology, is a high quality and reliable Internet routing and security device, capable of wirelessly transferring bandwidth-consuming applications with enhanced security and privacy. With inherently Nitro™ technology enhancement, the performance is significantly increased in 802.11b and 802.11g mixed networks.

This multi-functional and versatile device provides the most flexibility to your network set-up. Simply install the device, connect to Cable/DSL modem, and surf Internet without extra efforts. Also, it supports WDS (Wireless Distribution System) that could repeat wireless signals and easily extend your networks coverage. Acting as a 10/100Mbps 4-port Ethernet switch as well, with all ports supporting MDI/MDI-X, allows you to use CAT5 cable to uplink to other routers/switches.

The Wireless 11g Broadband Router is featured with most advanced security technology, supporting WPA (Wi-Fi Protected Access), TKIP, AES, and 802.1x. With the Wireless 11g Broadband Router, your network is armed with the highest levels of protection.

1.1 Features & Benefits

Features	Benefits
High Speed Data Rate Up to 54Mbps	Capable of handling heavy data payloads such as MPEG video streaming
IEEE 802.11b/g Compliant	Fully interoperable with IEEE 802.11b/IEEE802.11g compliant
Four built-in 10/100Mbps Switch Ports (Auto-Crossover)	Scalability, able to extend your network
Nitro Technology support	Optimized distance and throughput
DDNS Support	Lets users assign a fixed host and domain name to a dynamic Internet IP address.
NAT/NAPT support	Shares single Internet account and providing a natural firewall
Connection Filtering	Filter the connection based on MAC/ IP/ Ports to protect your Internal Network
Firewall supports Virtual DMZ, IP Filter, ICMP Blocking, DoS, SPI, VPN Pass-through(L2TP, PPTP)	Avoids the attacks of Hackers or Viruses from Internet
WPA(TKIP/ Pre-shared key) support	Powerful data security
WDS (Wireless Distribution System)	Make wireless AP and Bridge mode simultaneously as a wireless repeater
Universal Plug and Play (UPnP™)	Works with most Internet gaming and instant messaging applications for automatic Internet access

Filter Scheduling	The filter can be scheduled by days, hours or minutes for easy management
Real time alert	The detection of a list for Hacker log-in information
Web configuration	Helps administrators to remotely configure or manage the Router via Telnet/Web-browser

1.2 Package Contents

- One Wireless 11g Broadband Router
- One Power Adapter 12V/1A
- One RJ-45 Cable
- One Quick Start Guide
- One CD-ROM with User's Manual Included

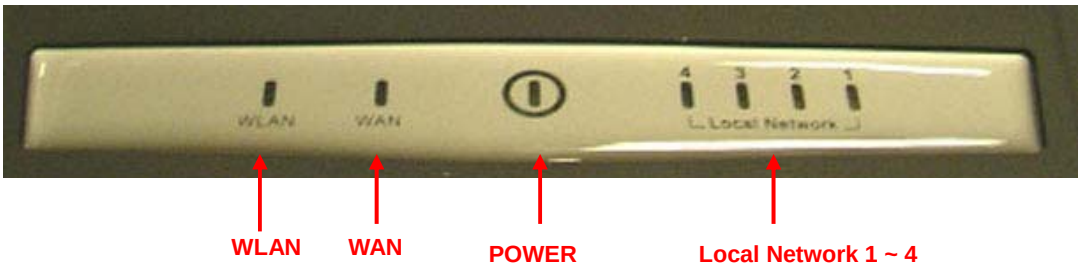
2 Understanding the Hardware

This chapter describes the hardware of the device. The ports on the rear panel are described along with the status of the LEDs on the front panel. The hardware installation procedure is also covered in this chapter.

2.1 Overview

2.2 Front Panel

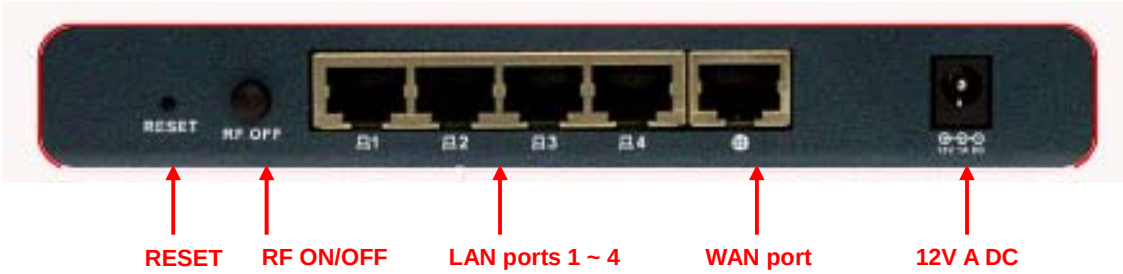
The following in an image of the front panel LEDs. The table below lists the labels on the LEDs and their descriptions.



Label	LED	Description
WLAN	OFF **Green** – steady **Green** - blinking	No wireless connection Wireless connection ready transmitting or receiving over wireless network
WAN	OFF **Green** – steady **Green** - blinking	No WAN connection Device connected to port Device transmitting or receiving on port
POWER	OFF **Blue**	No power Power ON
Local Network 1 ~ 4	OFF **Green** – steady **Green** - blinking	No LAN connection Device connected to port Device transmitting or receiving on port

2.3 Rear Panel

The following is an image of the ports on the rear panel. The table below lists the labels and their description.



Label	Description
RESET	Press & hold this button for 1 or 2 seconds to reset the device to its current settings. ** Press & hold this button for more than 5 seconds to rest the device to its default factory settings.
RF ON/OFF	Push this button IN to turn OFF RF functionality. Push this button OUT to turn ON RF functionality.
LAN ports 1 ~ 4	Connect the network devices to these ports using RJ-45 cables.
WAN port	Connect the xDSL modem or Cable modem to this port for Internet connection.
12V A DC	Plug-in the power adapter into the DC-inlet.

2.4 Connecting to the Router

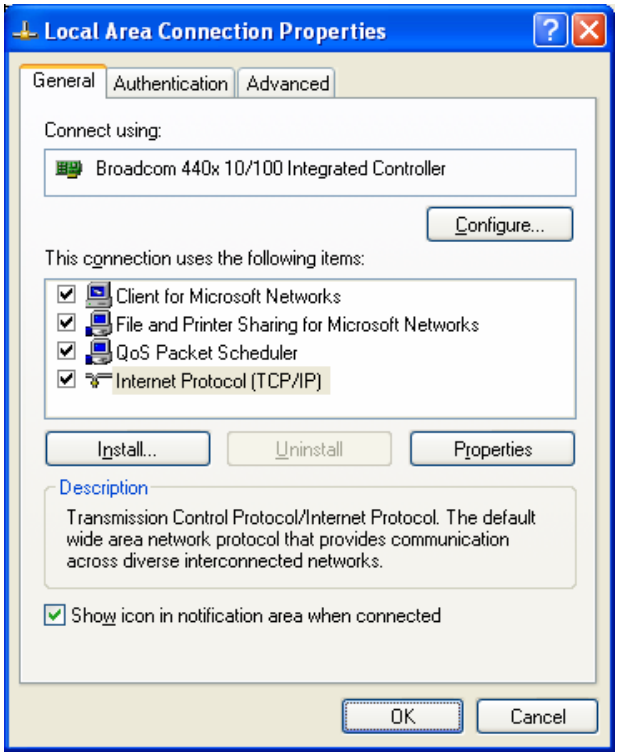
Follow the steps below to connect the Router to your computer or network.

1. Make sure that your xDSL or cable modem is powered OFF.
2. Connect one end of the RF-45 cable to the WAN port of the Router, and the other end to your xDSL or cable modem.
3. To build a wired Internet connection, plug one end of another RJ-45 into one of the LAN ports, and the other end into your computer.
4. Power ON your xDSL or cable modem.
5. Plug-in the DC-end of the power adapter supplied into the DC-inlet of the Router, and the other end to the power-socket.
6. Verify the status of the LEDs to make sure that the Router is connected properly.

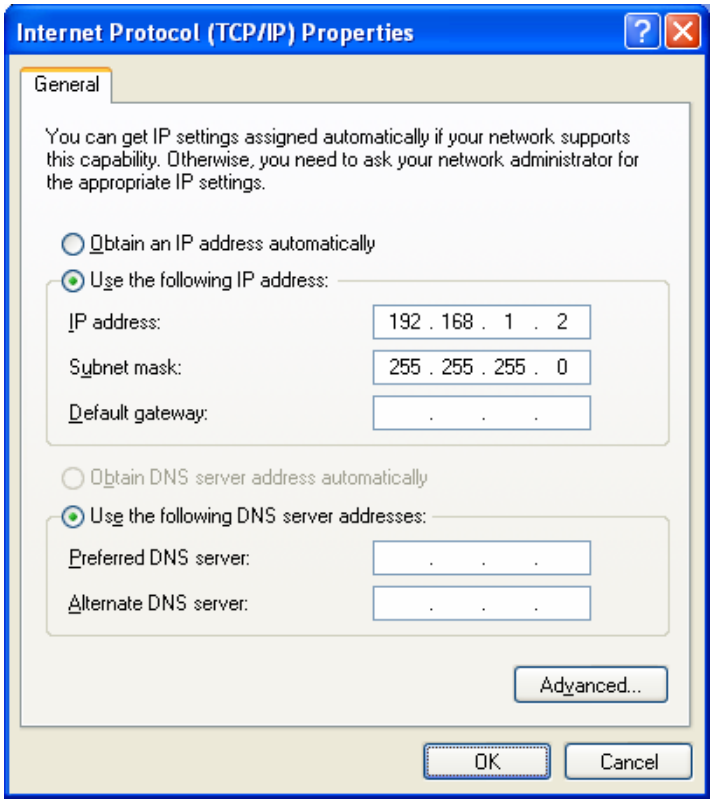
2.5 TCP/IP Configuration

Follow the steps below in order to configure the TCP/IP settings of your PC.

A. In the Control Panel double click **Network Connections**, and then double click on the connection of your Network Interface Card (NIC). You will then see the following screen.



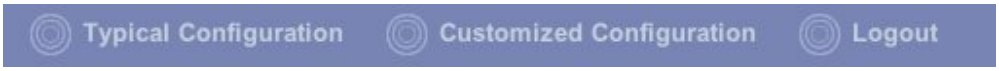
B. Select **Internet Protocol (TCP/IP)** and then click on the **Properties** button. This will allow you to configure the IP address of your PC. You will then see the following screen.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 2
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

C. Select **Use the following IP address** radio button, and then enter an IP address and subnet mask for your PC. Make sure that the Router and your PC are on the same subnet. The default IP address and subnet mask of the Router are **192.168.1.254** and **255.255.255.0** respectively.
D. Click on the **OK** button, your PC's TCP/IP settings have been configured.

3 Typical Configuration

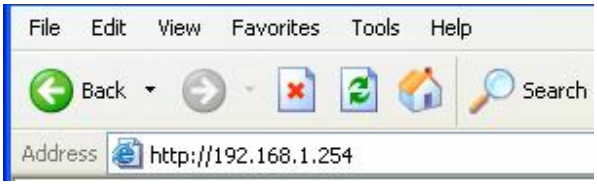
The Router can be configured in two different ways using the web-browser. This chapter describes the steps necessary to configure the device using the setup wizard.



This configuration type is called **Typical Configuration**. To create customized configurations refer to Chapter 4.

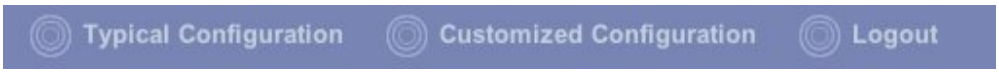
3.1 Logging In

To configure the Router through the web-browser, enter the IP address of the Router (default: 192.168.1.254) into the address bar of the web-browser, and press **Enter**.



You will then see the login page. Enter **admin** as the password and then click on the **Login** button.

After successfully logging in, you will see the following menu. Select **Typical Configuration**.

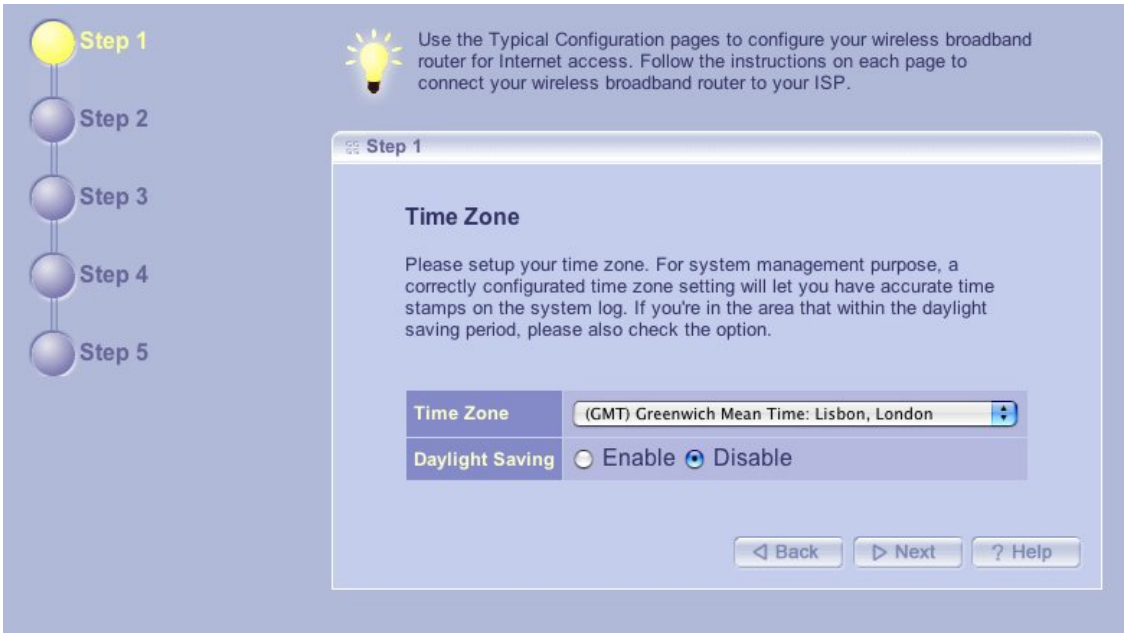


- **Typical Configuration**: Provides a step-by-step setup wizard to guide you through the basic settings of the router. After completing the steps, the Router will be able to connect to the ISP.

- **Customized Configuration**: Allows you to customize the network settings of the router for specific purposes such as: password settings, firmware upgrade, NAT, firewall, etc.
- **Logout**: Exists the utility and returns to the login page.

3.2 Setting the Time Zone

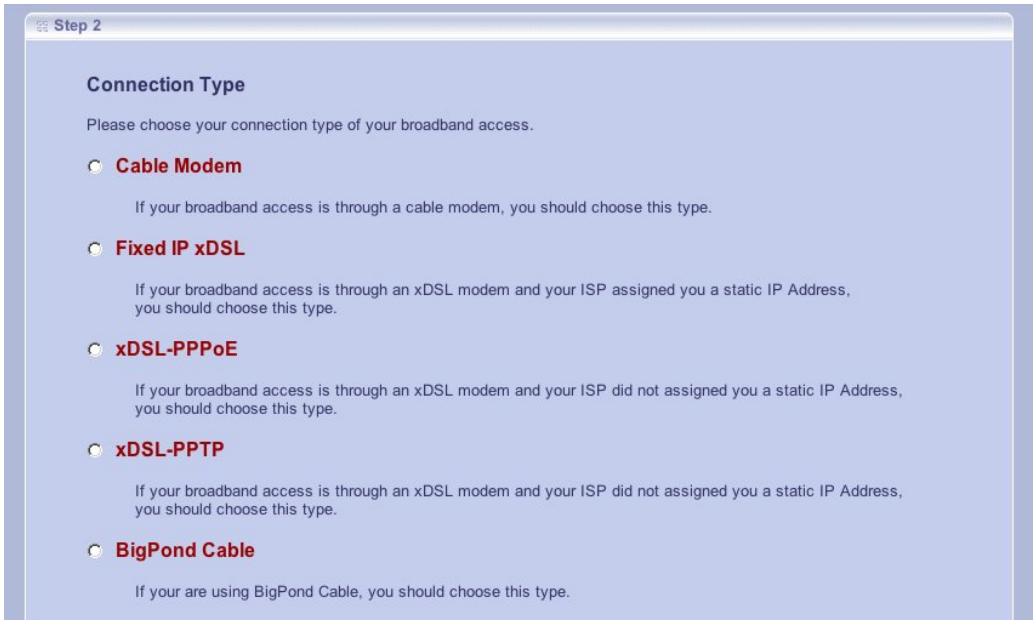
The first step is to setup the time zone. For management purposes, a correct time zone setting will let you have accurate time stamps on the system log.


Step 1
Step 2
Step 3
Step 4
Step 5
Use the Typical Configuration pages to configure your wireless broadband router for Internet access. Follow the instructions on each page to connect your wireless broadband router to your ISP.
Step 1
Time Zone
Please setup your time zone. For system management purpose, a correctly configurated time zone setting will let you have accurate time stamps on the system log. If you're in the area that within the daylight saving period, please also check the option.
Time Zone
(GMT) Greenwich Mean Time: Lisbon, London
Daylight Saving
Enable
Disable
Back
Next
Help

- **Time Zone**: Select your time zone from the drop-down list.
- **Daylight Saving**: Select the **Enable** radio button if you are in the daylight saving time zone.
- Click on the **Next** button to continue.

3.3 Connection Type

The next step is to setup the connection type. The following connections are supported by this router, and each one is described in this section: Cable Modem Fixed IP xDSL, XDSL PPPoE, xDSL PPTP, and BigPong Cable.


Step 2
Connection Type
Please choose your connection type of your broadband access.
Cable Modem
If your broadband access is through a cable modem, you should choose this type.
Fixed IP xDSL
If your broadband access is through an xDSL modem and your ISP assigned you a static IP Address, you should choose this type.
xDSL-PPPoE
If your broadband access is through an xDSL modem and your ISP did not assigned you a static IP Address, you should choose this type.
xDSL-PPTP
If your broadband access is through an xDSL modem and your ISP did not assigned you a static IP Address, you should choose this type.
BigPond Cable
If your are using BigPond Cable, you should choose this type.

3.3.1 Cable Modem

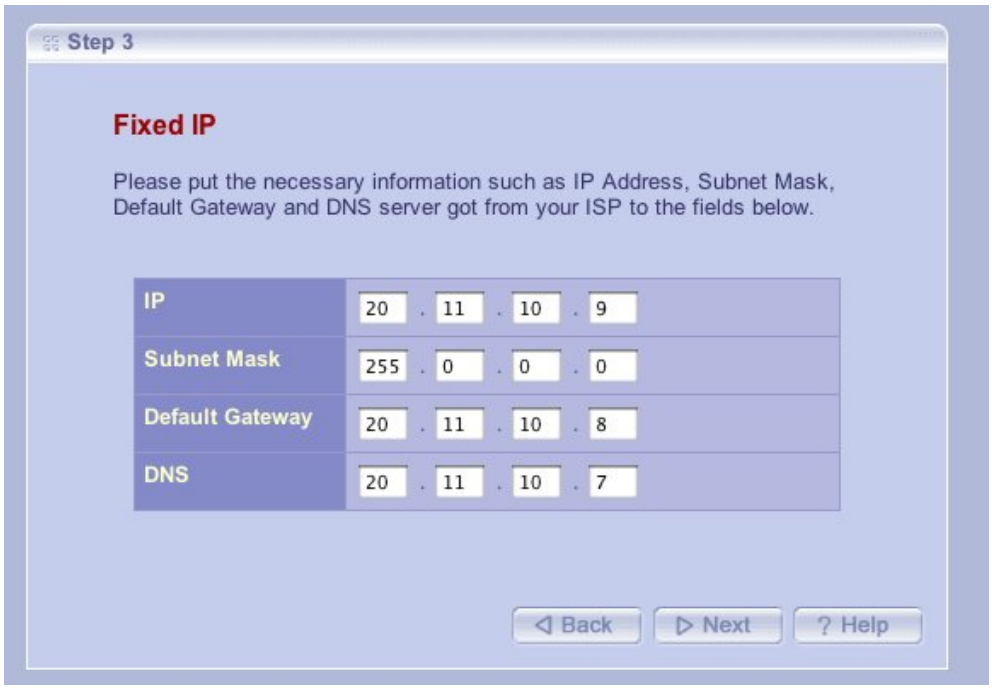
If your broadband access is through a cable modem or your ISP uses DHCP, select this option.

Step 3
Cable Modem
In case your ISP gave you a host name or a MAC address, you should put related information to the fields below.
Host Name
Cable_ISP
MAC Address
00 - 0C - 76 - C8 - C7 - EA
Back
Next
Help

- **Hostname:** Enter a hostname if it was provided by the ISP (optional).
- **MAC Address**: Enter a MAC address if it was provided by ISP (optional).
- Click on the **Next** button to continue.

3.3.2 xDSL PPPoE

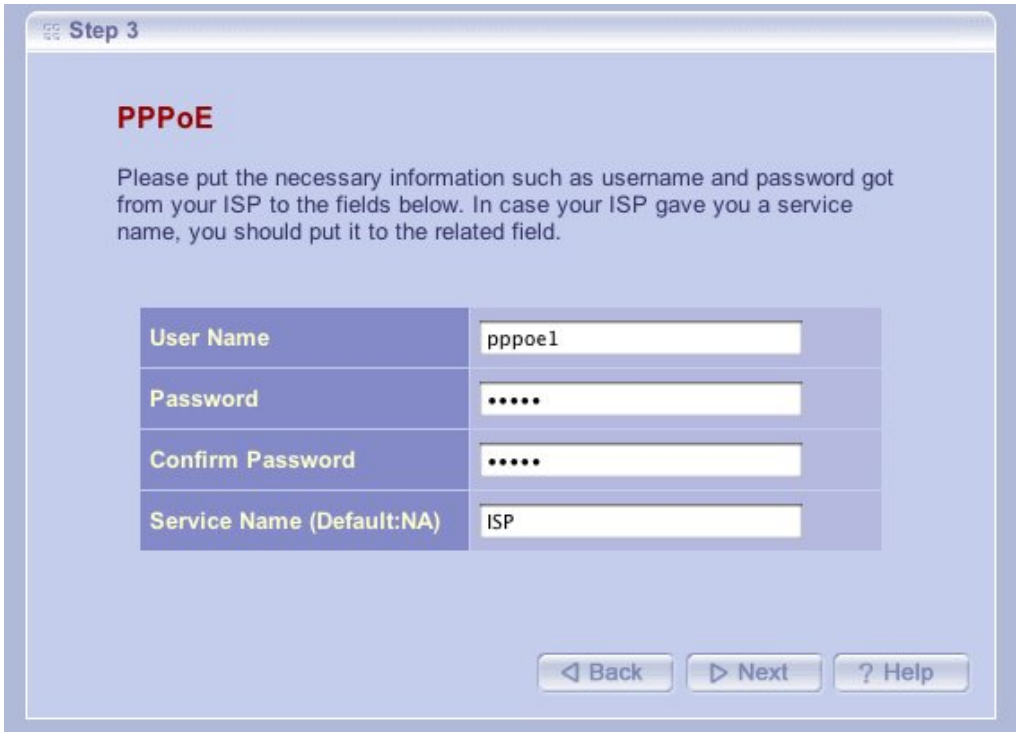
If your broadband access is through a xDSL modem and uses a fixed IP address, select this option.


Step 3
Fixed IP
Please put the necessary information such as IP Address, Subnet Mask, Default Gateway and DNS server got from your ISP to the fields below.
IP
20 . 11 . 10 . 9
Subnet Mask
255 . 0 . 0 . 0
Default Gateway
20 . 11 . 10 . 8
DNS
20 . 11 . 10 . 7
Back
Next
Help

- **IP:** Enter the IP address as provided by the ISP.
- **Subnet Mask:** Enter the subnet mask as provided by the ISP.
- **Default Gateway:** Enter the default gateway IP address as provided by the ISP.
- **DNS:** Enter the DNS IP address as provided by the ISP.
- Click on the **Next** button to continue.

3.3.3 xDSL PPPoE

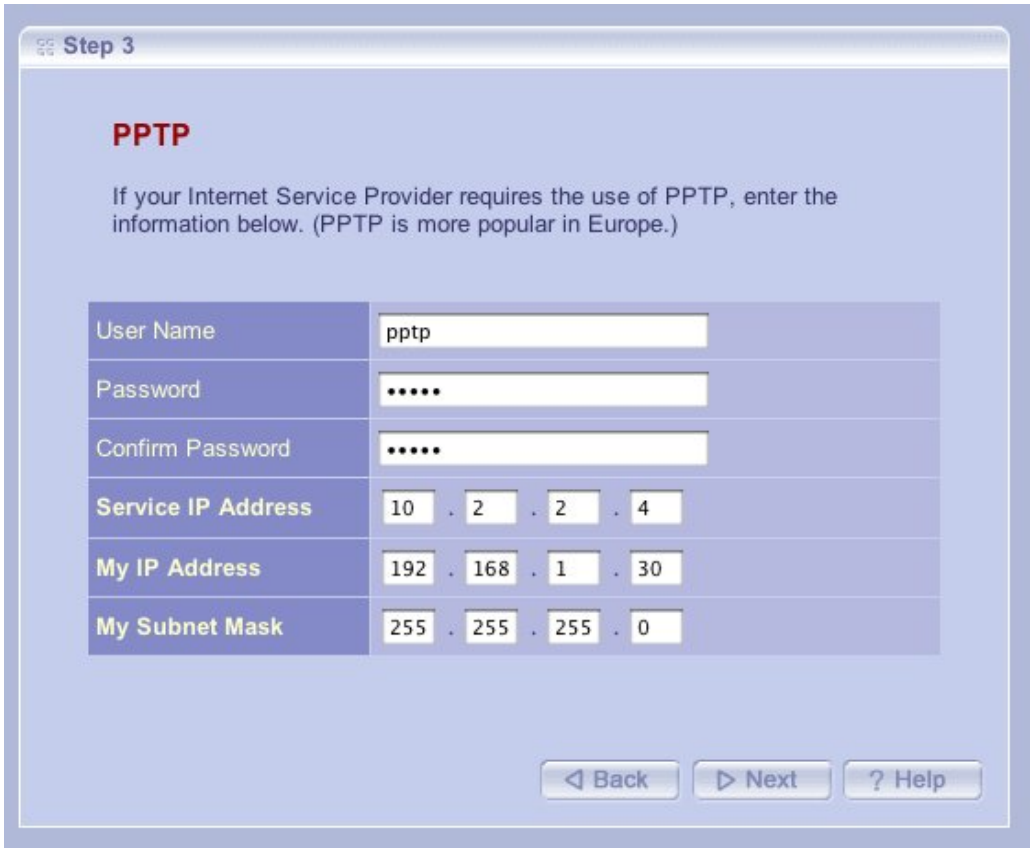
If your broadband access is through a xDSL modem and uses PPPoE (Point-to-Point Protocol over Ethernet), select this option.


Step 3
PPPoE
Please put the necessary information such as username and password got from your ISP to the fields below. In case your ISP gave you a service name, you should put it to the related field.
User Name
pppoe1
Password
Confirm Password
Service Name (Default:NA)
ISP
Back
Next
Help

- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **Service Name:** Enter the name of the ISP (optional).
- Click on the **Next** button to continue.

3.3.4 xDSL PPTP

If your broadband access is through a xDSL modem and uses PPTP (Point-to-Point Tunneling Protocol), select this option.



- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **Service IP Address:** Enter the IP address of the remote PPTP tunnel. This IP address should be provided by your ISP.
- **My IP address:** Enter the IP address of the local PPTP tunnel. This IP address should be provided by your ISP.
- **My Subnet Mask:** Enter the subnet mask of the local PPTP tunnel. This IP address should be provided by your ISP.
- Click on the **Next** button to continue.

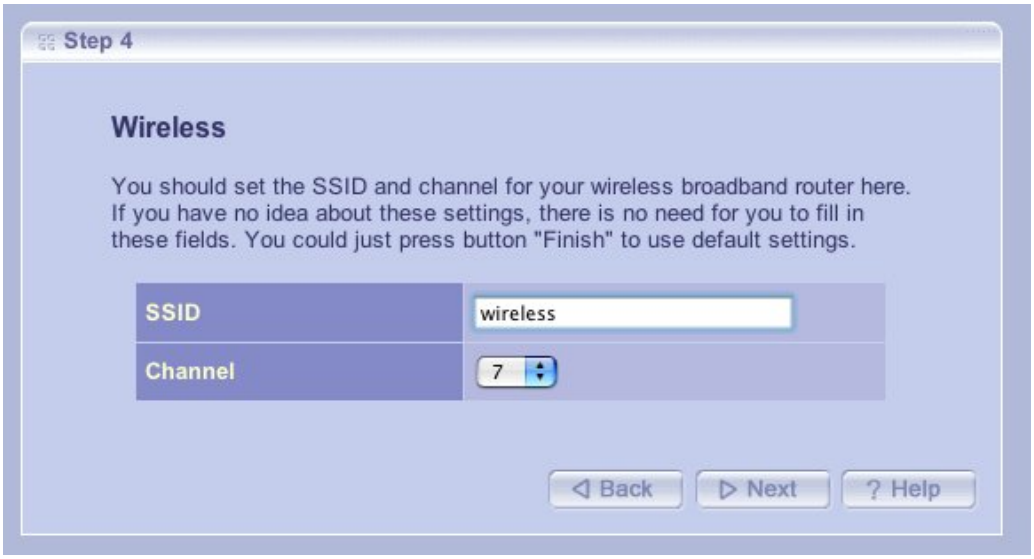
3.3.5 BigPond Cable

If your broadband access service is through BigPond cable, select this option. (This service is available only in Australia).

- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **Hostname:** Enter a hostname if it was provided by the ISP (optional).
- **Auth. Server:** Select an authentication server from the drop-down list. This will automatically fill in the Server IP Address at the bottom.
- **Manual Server:** If your authentication server is not listed above, select **Enable** and then enter the server IP address below.
- **Server IP Address:** Enter this IP address if your authentication server is not listed above.
- Click on the **Next** button to continue.

3.4 Wireless Settings

In this step you can configure the basic wireless settings: SSID and channel.


Step 4
Wireless
You should set the SSID and channel for your wireless broadband router here.
If you have no idea about these settings, there is no need for you to fill in
these fields. You could just press button "Finish" to use default settings.
SSID
wireless
Channel
7
Back
Next
Help

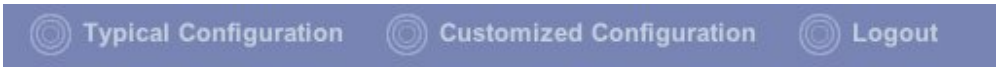
- **SSID:** Enter the SSID (Service Set Identifier) which is the network name (by default: **default**). This is case-sensitive and cannot exceed 32 characters. All wireless devices on the network must use the same SSID.
- **Channel:** Select a channel number from the drop-down list. All wireless devises on the network must use the same channel. If you are experiencing interference, try a different channel.
- Click on the **Next** button to continue.

3.5 Summary

In the last step of the typical configuration a summary page is displayed that lists the settings that were just configured. Click on the **Finish** button to complete the configuration.

4 Customized Configuration

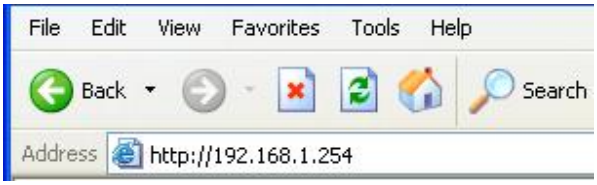
The Router can be configured in two different ways using the web-browser. This chapter describes the steps necessary to customize the settings of the router.



This configuration type is called **Customized Configuration**. To create a typical configuration (setup wizard) refer to the pervious chapter.

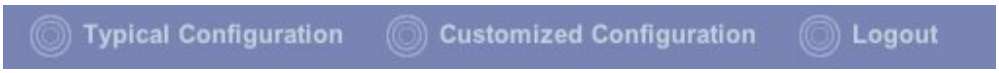
4.1 Logging In

To configure the Router through the web-browser, enter the IP address of the Router (default: 192.168.1.254) into the address bar of the web-browser, and press **Enter**.



You will then see the login page. Enter **admin** as the password and then click on the **Login** button.

After successfully logging in, you will see the following menu. Select **Customized Configuration**.



- **Typical Configuration**: Provides a step-by-step setup wizard to guide you through the basic settings of the router. After completing the steps, the Router will be able to connect to the ISP.

- **Customized Configuration**: Allows you to customize the network settings of the router for specific purposes such as: password settings, firmware upgrade, NAT, firewall, etc.
- **Logout**: Exists the utility and returns to the login page.

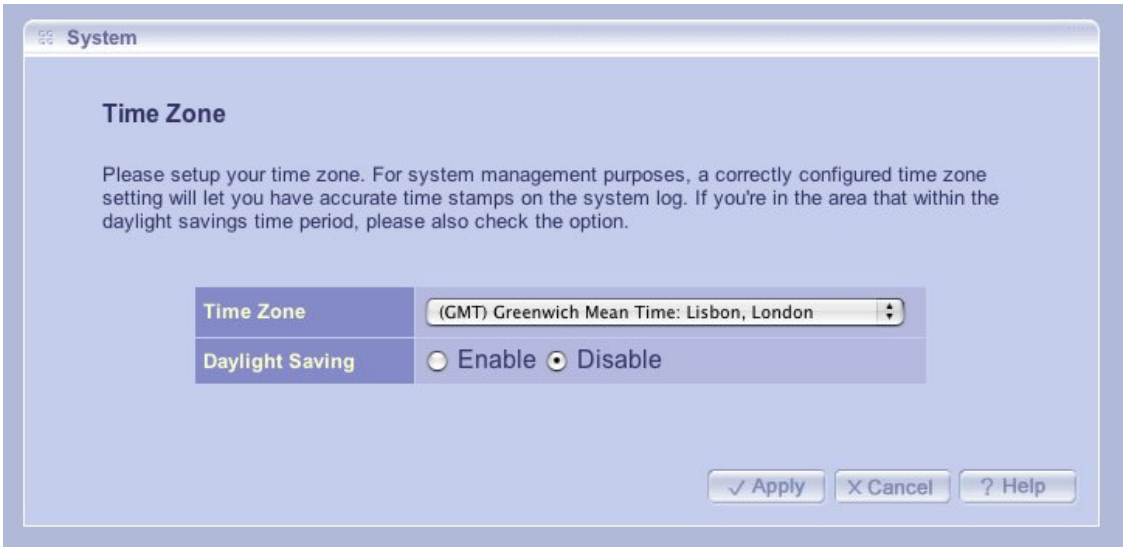
4.2 System Settings

Click on the **System** button on the top navigation bar to view the options available for the system settings.

The System menu includes the following options and each one is described in this section: Time Zone, Password Setting, Remote Management, Firmware Upgrade, Restart, Factory Default, System Status, Statistics, Event Log, Diagnostic, Use as Access Point, and Backup Settings.

4.2.1 Time Zone

For management purposes, a correct time zone setting will let you have accurate time stamps on the system log.


System
Time Zone
Please setup your time zone. For system management purposes, a correctly configured time zone setting will let you have accurate time stamps on the system log. If you're in the area that within the daylight savings time period, please also check the option.
Time Zone
(GMT) Greenwich Mean Time: Lisbon, London
Daylight Saving
Enable
Disable
Apply
Cancel
Help

- **Time Zone**: Select your time zone from the drop-down list.
- **Daylight Saving**: Select the **Enable** radio button if you are in the daylight saving time zone.
- Click on the **Apply** button to continue.

4.2.2 Password Setting

This router is shipped with the default password set as ***admin***. This option allows you to use a personal password to replace the default password.

- **Old Password:** Enter the old password, default is ***admin***.
- **New Password:** Enter the new password that you would like to use.
- **Confirm New Password:** Re-type the new password for confirmation purposes.
- **Expire Status:** This option allows you to change the login idle time, which is the amount of time that elapses before the router automatically logs off the user. Select **Enable** to turn on this function.
- **Expire Time:** Enter the idle time (in minutes) after which the user will be automatically logged off.
- Click on the **Apply** button to continue.

4.2.3 Remote Management

The remote management option allows you to log into the router from a WAN connection (Internet).

- **Remote Management:** Choose to Enable or Disable remote management.
- **Remote Management WAN Port:** Enter the port number that you would like to use for remote management. By default, this value is set to ***8080***.
- Click on the **Apply** button to continue.

4.2.4 Firmware Upgrade

This page allows you to upload the latest firmware into the router.

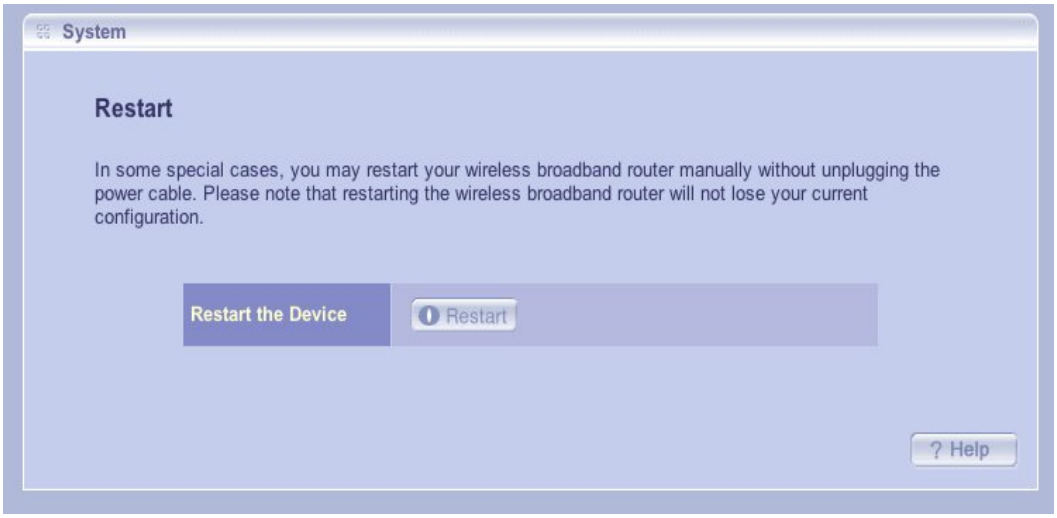
System
Firmware Upgrade
From time to time, a new updated firmware will be released which has either feature improvement or bug fix. Once if you download the new firmware, you can update the firmware of your wireless Broadband Router from here.
Upgrade Firmware
Choose File
no file selected
Upgrade
Cancel
Help

- **Firmware Upgrade:** Click on the **Choose File** button to select the firmware, and then click on the **Upgrade** button.
- You will then need to confirm the decision. Click on the OK button on the dialog

box. After the firmware upgrade is complete, the router will restart.
Note: Do not power off the device while the firmware is being upgraded.

4.2.5 Restart

This page allows you to manually restart the router without unplugging the power. By doing this you will not loose your current configuration. Click on the **Restart** button to do so.

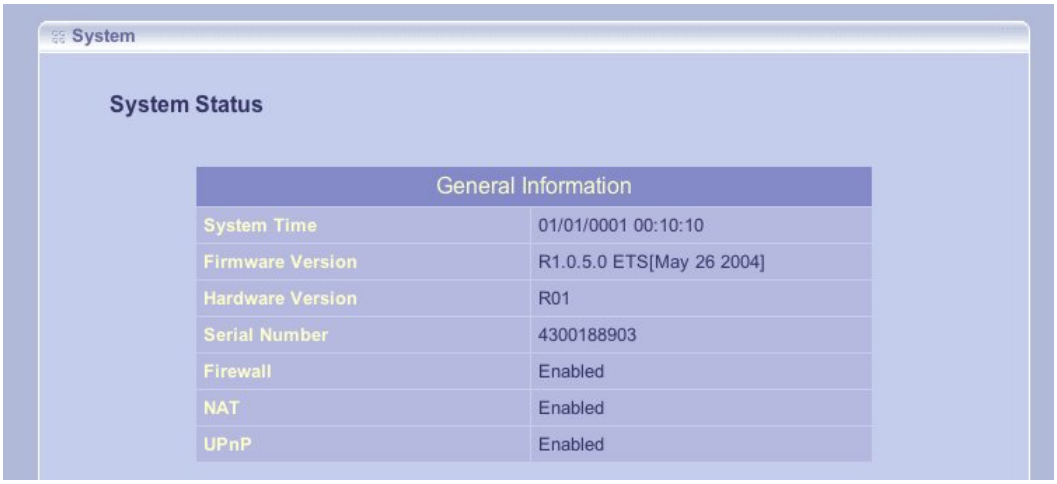

System
Restart
In some special cases, you may restart your wireless broadband router manually without unplugging the power cable. Please note that restarting the wireless broadband router will not lose your current configuration.
Restart the Device
Restart
? Help

4.2.6 Factory Default

This page allows you to reset the router back to its default settings. This can also be done by holding down the reset button on the rear panel of the router for more than 5 seconds. Click on the **Restore** button and then the **OK** button to confirm your decision.
Note: By resetting the device to its factory defaults, you will loose your current configuration.

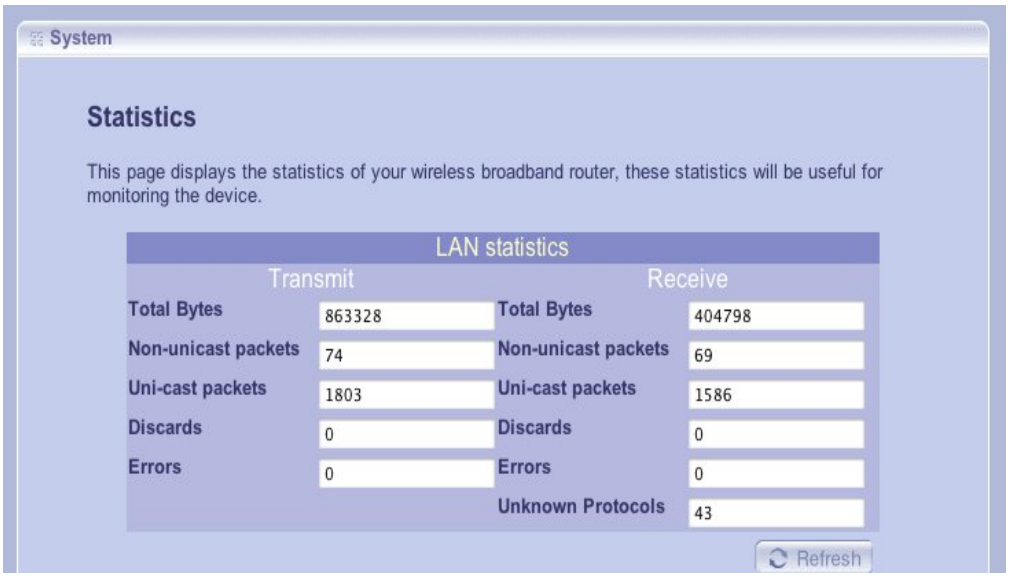
4.2.7 System Status

This page displays the router's configuration. This includes General, Internet, LAN, and WAN settings. Click on the **Refresh** button view the most updated status.



4.2.8 Statistics

This page displays all the necessary statistics of the router. This information is necessary for monitoring the router's performance. Click on the **Refresh** button view the most updated statistics.



4.2.9 Event Log

This page displays the last 128 events recorded by the router. This data is useful for monitoring and troubleshooting the network.

System
Event Log
Index Date Time Task Name Event messages
1 0001/01/01 00:06:04 SNTP Disable Daylight Saving
2 0001/01/01 00:06:04 SNTP Change Time Zone
3 0001/01/01 00:00:01 WLAN Mgmt AP Initialization done at 1st interface
4 0001/01/01 00:00:00 BigPond Init OK
5 0001/01/01 00:00:00 UPnP Initial phase done.
6 0001/01/01 00:00:00 DNS Relay Initial phase done.
7 0001/01/01 00:00:00 PPTP Init OK!
8 0001/01/01 00:00:00 WLAN Mgmt Interface Initialization completes
9 0001/01/01 00:00:00 NAT Init OK
10 0001/01/01 00:00:00 PPPOE Init OK
11 0001/01/01 00:00:00 DHCPC Init OK
12 0001/01/01 00:00:00 CLONEMAC Init OK
13 0001/01/01 00:00:00 DHCPSrv Init Ok
14 0001/01/01 00:00:00 SNTP SNTP Init
15 0001/01/01 00:00:00 CFGMGR Init OK!

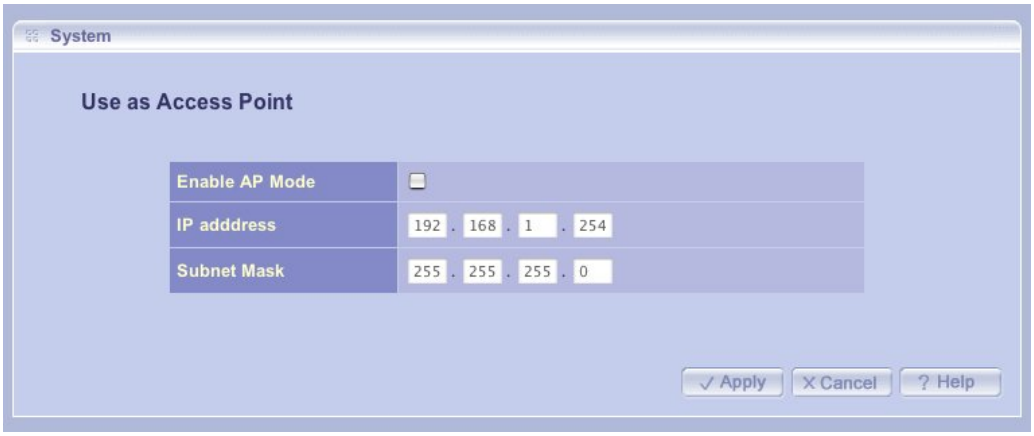
4.2.10 Diagnostic

This page allows you to test your connection in two ways: Ping and & Internet connection.

- **IP Address:** Enter the IP address that you would like to Ping, and then click on the **Ping** button.
- **Connect to the Internet:** Click on the **Test Connection** button to test the Internet connection.

4.2.11 Use as Access Point

This page allows you to configure the router into Access Point mode, only acting as a bridge between the computers attached to all Ethernet ports (LAN) and the clients on the wireless LAN (WLAN). To operate in AP mode, the router must share the same subnet mask as the other LAN and WLAN devices.

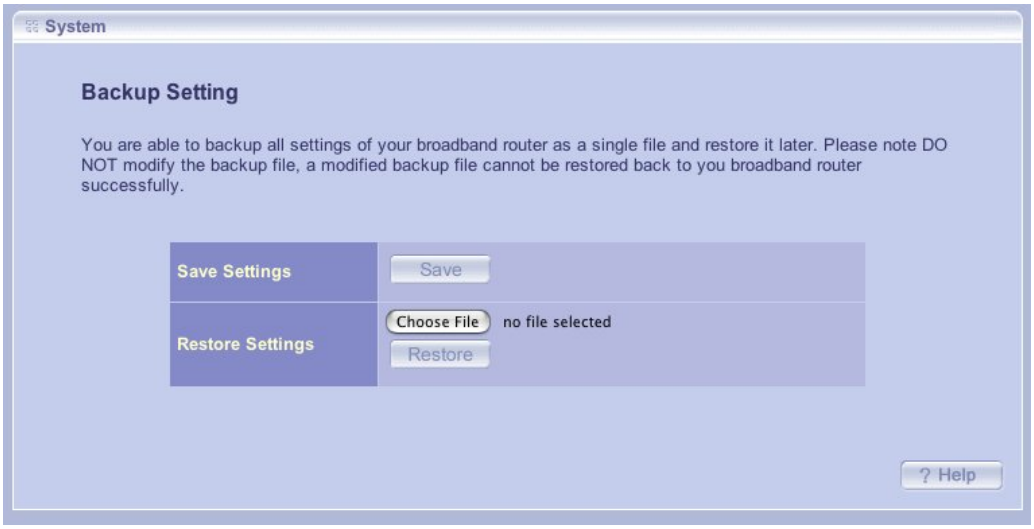


- **Enable AP Mode:** Place a check in this box to enable AP mode.
- **IP Address:** Enter the IP address of the AP.
- **Subnet Mask:** Enter the subnet mask of the AP.
- Click on the **Apply** button to continue.

Please wait while the router resets. In AP mode the internal NAT firewall and DHCP server will be disabled, and the four LAN ports and one WAN port will be bridged together. You will then notice that the menu bar is different, and consists of System and Wireless only.

4.2.12 Backup Setting

This page allows you to save the current profile on your computer or load an existing profile.


System
Backup Setting
You are able to backup all settings of your broadband router as a single file and restore it later. Please note DO NOT modify the backup file, a modified backup file cannot be restored back to you broadband router successfully.
Save Settings
Save
Restore Settings
Choose File
no file selected
Restore
? Help

- **Save Settings:** Click on the Save button to save the current profile.
- **Restore Settings:** Click on the Choose File button to select the existing profile, and then click on the **Restore** button. You will then need to confirm you decision, click on the **OK** button. Please wait while the router resets.

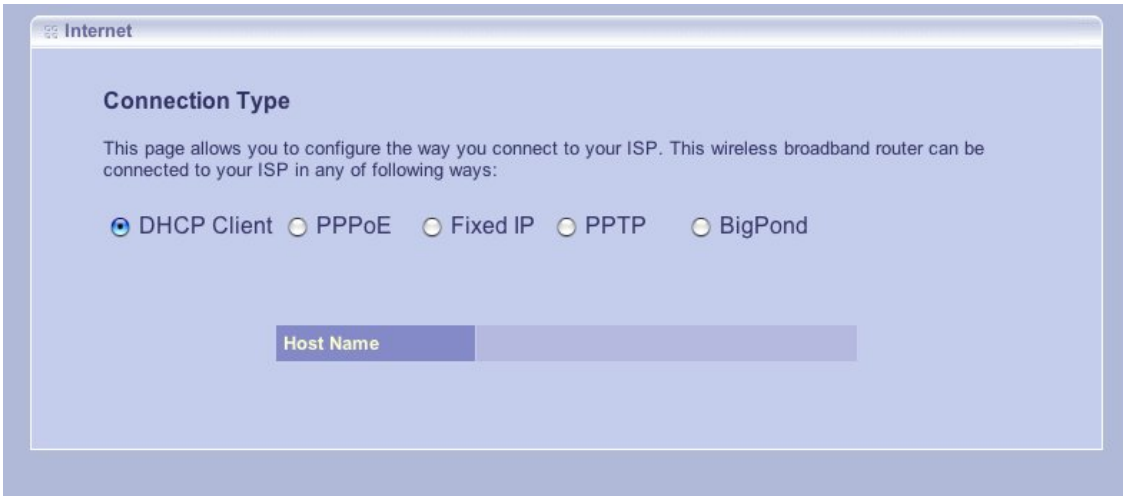
4.3 Internet Settings

Click on the **Internet** button on the top navigation bar to view the options available for the Internet settings.

The Internet menu includes the following options and each one is described in this section: Connection Type, MAC Clone, DNS, and Dynamic DNS.

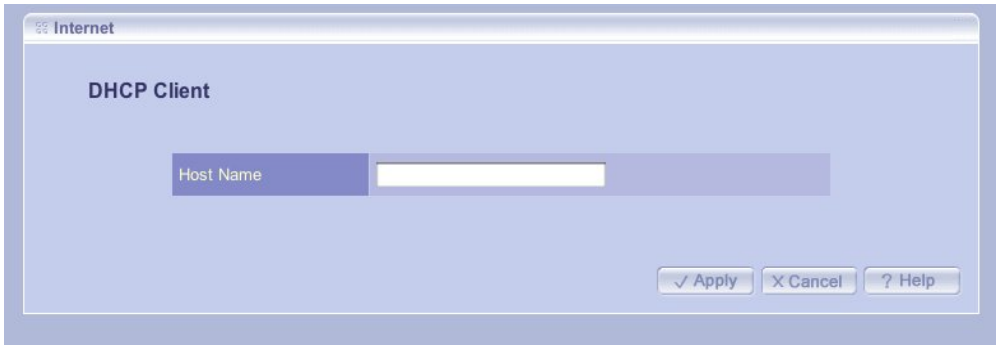
4.3.1 Connection Type

This page displays a list of connections that are supported by this Router. Steps to configure each of the connection types are described in this section.


Internet
Connection Type
This page allows you to configure the way you connect to your ISP. This wireless broadband router can be connected to your ISP in any of following ways:
DHCP Client
PPPoE
Fixed IP
PPTP
BigPond
Host Name

4.3.1.1 DHCP Client

Select this option if you connect to the Internet using a cable modem, and then enter the Host Name (name of ISP).



4.3.1.2 PPPoE

Select this option if your broadband service uses PPPoE (Point-to-Point Protocol over Ethernet)

- **PPPoE Type:** Select **Dynamic** or **Static**.
- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **MTU:** This is the Maximum Transmission Unit (MTU) that can be transmitted over the network. Do not change this value unless required by

ISP.

- **Authentication Type:** Select an authentication type from the drop-down list. Options available are: Auto, PAP, CHAP, or MSCHAP v1. The default setting is ***AUTO***.
- **Service Name:** Enter the name of the ISP (optional).
- **Primary DNS:** Enter the primary DNS IP address (optional).
- **Secondary DNS:** Enter the secondary DNS IP address (optional).
- **Connect on Demand:** Select **Disable** to auto-connect.
- **Disconnect Option:** Enter a number (minutes) after which an idle connection will disconnect. Setting this value to 0 will never disconnect.
- Click on the **Apply** button to continue.

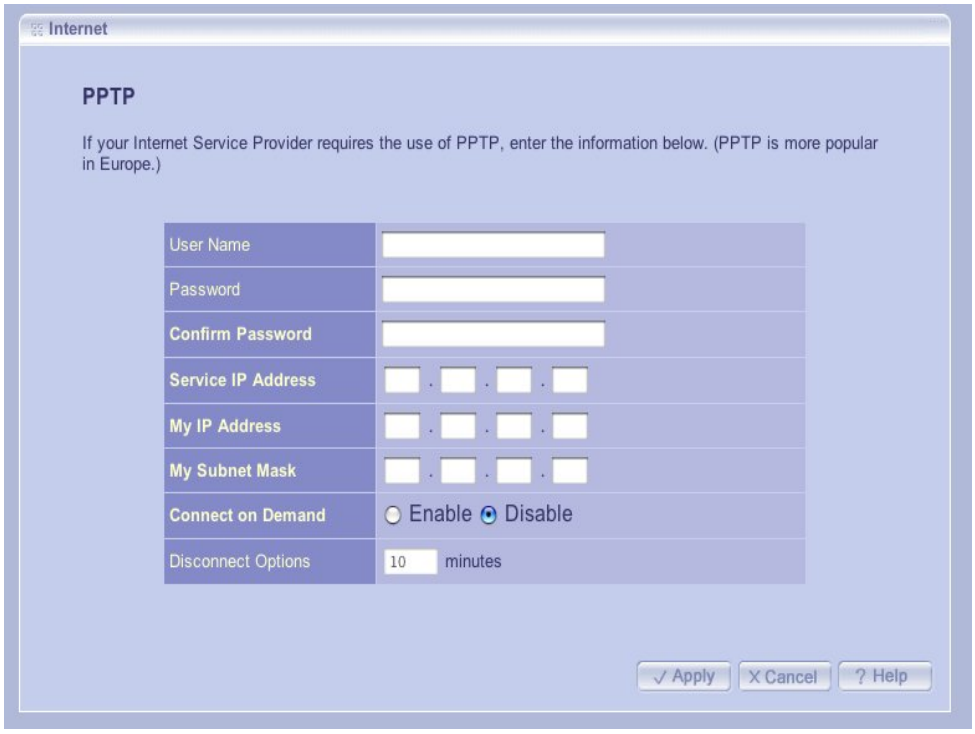
4.3.1.3 Fixed IP

Select this option if your broadband service uses a fixed IP address, and you have received one from you ISP.

- **IP Address:** Enter the IP address as provided by the ISP.
- **Subnet Mask:** Enter the subnet mask as provided by the ISP.
- **ISP Gateway:** Enter the gateway IP address as provided by the ISP.
- **Primary DNS:** Enter the primary DNS IP address.
- **Secondary DNS:** Enter the secondary DNS IP address (optional).
- Click on the **Apply** button to continue.

4.3.1.4 PPTP

Select this option if your broadband service uses a PPTP (Point-to-Point Tunneling Protocol), and you have received an IP address from you ISP.



- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **Service IP Address:** Enter the IP address of the remote PPTP tunnel. This IP address should be provided by your ISP.
- **My IP address:** Enter the IP address of the local PPTP tunnel. This IP address should be provided by your ISP.
- **My Subnet Mask:** Enter the subnet mask of the local PPTP tunnel. This IP address should be provided by your ISP.
- **Connect on Demand:** Select **Disable** to auto-connect.
- **Disconnect Option:** Enter a number (minutes) after which an idle connection will disconnect. Setting this value to 0 will never disconnect.
- Click on the **Apply** button to continue.

4.3.1.5 BigPond

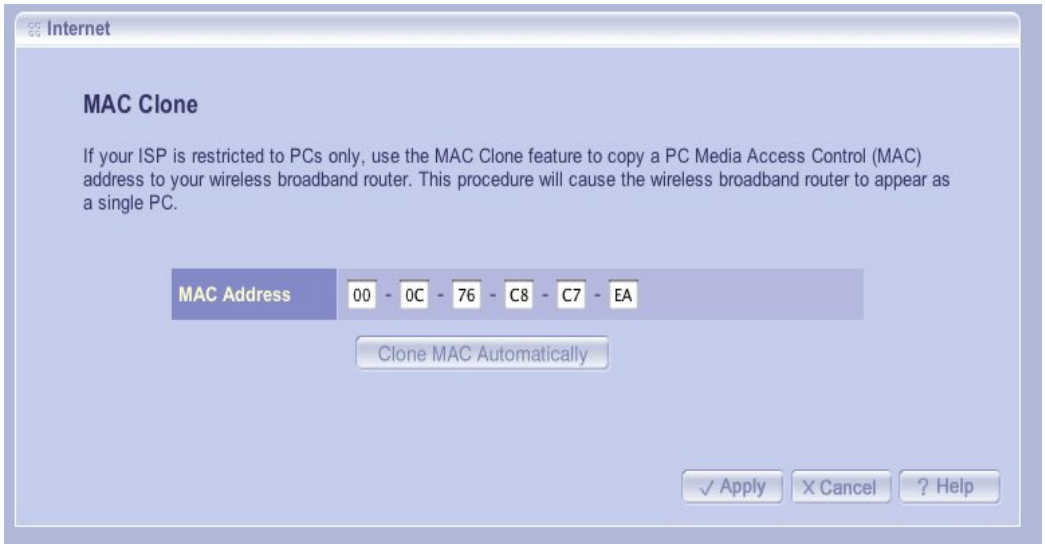
Select this option if your broadband access service is through BigPond cable (this service is available only in Australia).

- **User Name:** Enter the username as provided by the ISP.
- **Password:** Enter the password as provided by the ISP.
- **Confirm Password:** Re-type the password for confirmation purposes.
- **Hostname:** Enter a hostname if it was provided by the ISP (optional).
- **Auth. Server:** Select an authentication server from the drop-down list. This will automatically fill in the Server IP Address at the bottom.
- **Manual Server:** If your authentication server is not listed above, select **Enable** and then enter the server IP address below.
- **Server IP Address:** Enter this IP address if your authentication server is not listed above.
- Click on the **Apply** button to continue.

4.3.2 MAC Clone

This page allows you to clone the MAC address of the WAN interface. A MAC address is a 12-digit code assigned to a piece of hardware for identification purposes. The MAC address on this page refers to the MAC address of this router. If you need to provide your ISP with a MAC address for registration, provide the MAC address listed. You can then change the MAC address to match the one recorded by the ISP.

By cloning the MAC address, this router will appear to the ISP as a single PC. Click on the **Clone MAC Automatically** button, and then click on the **Apply** button.


Internet
MAC Clone
If your ISP is restricted to PCs only, use the MAC Clone feature to copy a PC Media Access Control (MAC) address to your wireless broadband router. This procedure will cause the wireless broadband router to appear as a single PC.
MAC Address
00 - 0C - 76 - C8 - C7 - EA
Clone MAC Automatically
Apply
Cancel
Help

4.3.3 DNS

This page allows you to setup DNS (Domain Name System) on the router. DNS is able to translate internet domain names into IP addresses. This page can be used to add mappings between a private static IP address and a domain name. Such a feature can be helpful when setting up a FTP or Web server.

Enter the **Domain Name** and corresponding **IP address**, and then click on the **Add** button.

4.3.4 Dynamic DNS

This page allows you to setup Dynamic DNS (Domain Name System) on the router. DDNS allows you to assign a fixed host and domain name to a dynamic Internet IP address. Each time the router boots up, it will re-register its domain-name-to-IP-address mapping with the DDNS service provider. This is the reason that Internet users can access the router through a domain name instead of its IP address.

Internet
Dynamic DNS
This feature enables you to run your domain over a changing IP. Please choose one of the Dynamic DNS providers that this wireless gateway supports and fill in related fields to make it work. If you get any problem, you can check with the Dynamic DNS provider that you choose.
Dynamic DNS
Enable
Disable
Dynamic DNS Provider
DynDNS.org
Host Name
User Name
Password
My IP Address
0.0.0.0
Update Manually
Update Now
Status
✓ Apply
X Cancel
? Help

Note: Make sure that you have registered with a DDNS service provider before enabling this feature.

- **Dynamic DNS:** Select **Enable** or **Disable**.
- **Dynamic DNS Provider:** Select a DDNS service provider from the drop-down list.
- **Host Name:** Enter the hostname as registered with the DDNS service provider.
- **User Name:** Enter the user name required to log into the DDNS account.
- **Password:** Enter the password required to log into the DDN S account.
- **My IP Address:** Enter the IP address of this router.
- **Update Manually:** Click on this button if would like to remove the original settings.
- **Status:** Displays the status of the DDNS connection as received from the DDNS server.
- Click on the **Apply** button to continue.

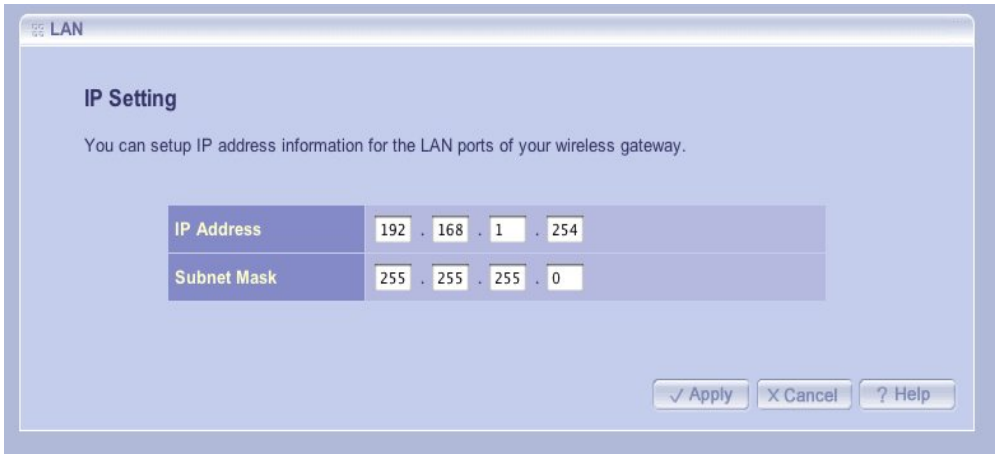
4.4 LAN Settings

Click on the **LAN** button on the top navigation bar to view the options available for the LAN settings.

The LAN menu includes the following options and each one is described in this section: IP Setting, DHCP Server, DHCP-IP-MAC mapping, DHCP Client List, MAC Filter, UPnP Setting

4.4.1 IP Setting

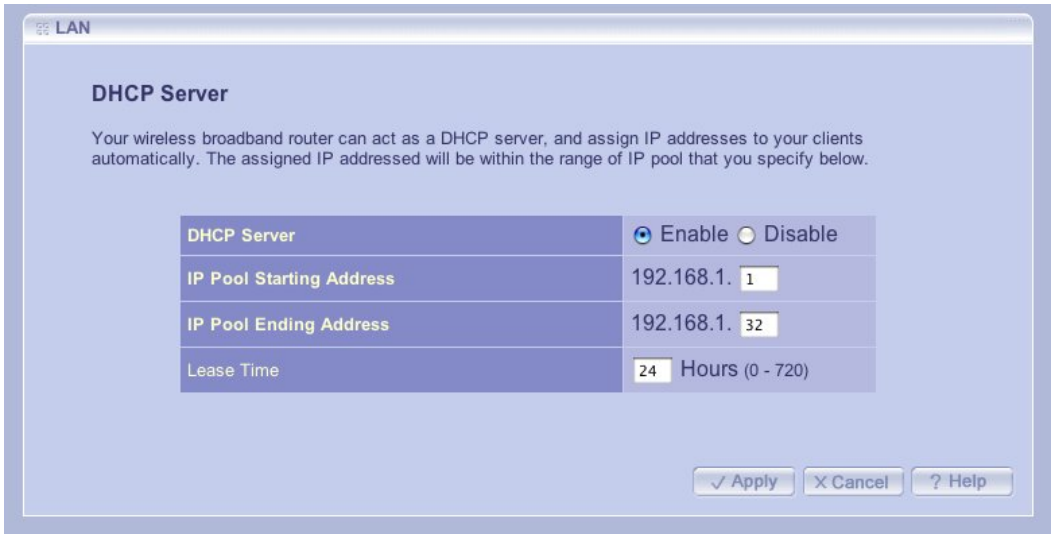
This page allows you to change the IP address and subnet mask of this router.



- **IP Address:** Enter the IP address for this router.
- **Subnet Mask:** Enter the subnet mask for this router.
- Click on the **Apply** button to continue.

4.4.2 DHCP Server

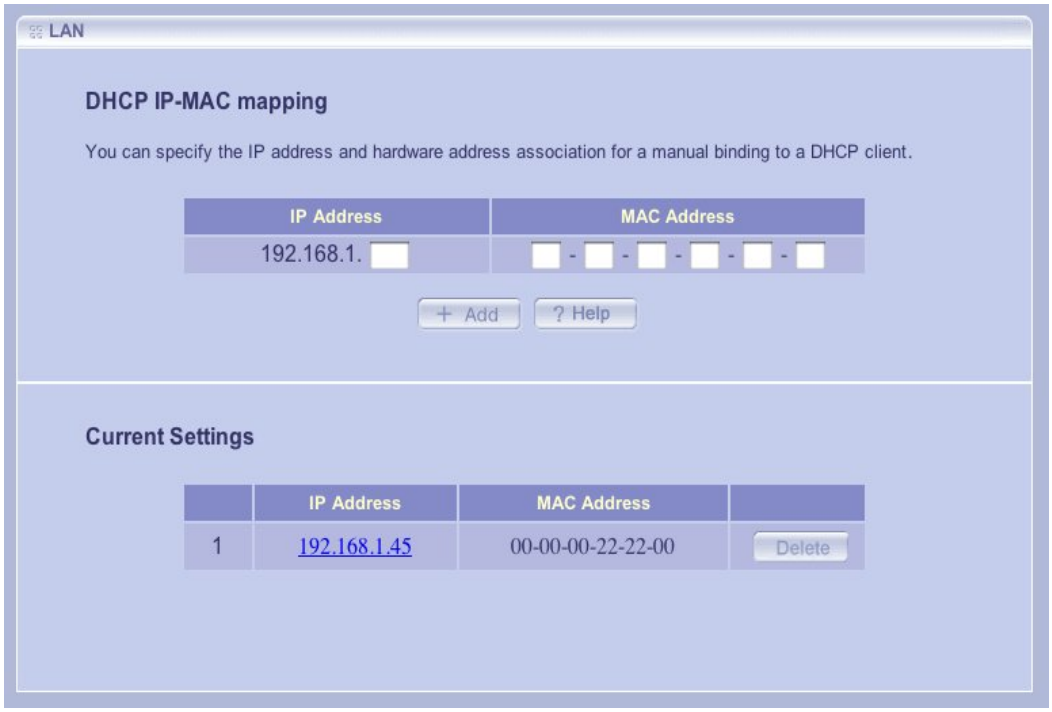
This page allows you to configure the DHCP server, which assigns IP addresses to all the clients on the network.


LAN
DHCP Server
Your wireless broadband router can act as a DHCP server, and assign IP addresses to your clients automatically. The assigned IP addressed will be within the range of IP pool that you specify below.
DHCP Server
Enable Disable
IP Pool Starting Address
192.168.1. 1
IP Pool Ending Address
192.168.1. 32
Lease Time
24 Hours (0 - 720)
Apply
Cancel
Help

- **DHCP Server:** Select **Enable** or **Disable**.
- **IP Pool Starting Address:** Enter the first address that should be assigned by the DHCP server.
- **IP Pool Ending Address:** Enter the last address that should be assigned by the DHCP server.
- **Lease Time:** Enter the number of hours that a client can use the assigned IP address.
- Click on the **Apply** button to continue.

4.4.3 DHCP-IP-MAC mapping

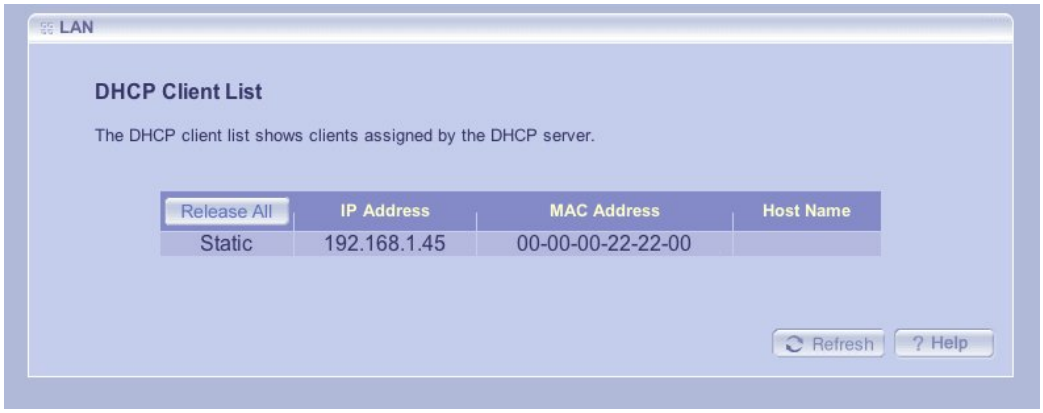
This page allows you to configure the DHCP server to assign a specific IP address to a specified MAC address.



- **IP Address:** Enter the IP address that you would like to reserve for a specified MAC address.
- **MAC Address:** Enter the MAC address that was specified for the reserved IP address.
- Click on the **Add** button to add this entry into the table (current settings).
- **Current Settings:** This table lists the entry of DHCP-IP-MAC mappings. Click on the **Delete** button to remove an entry.

4.4.4 DHCP Client List

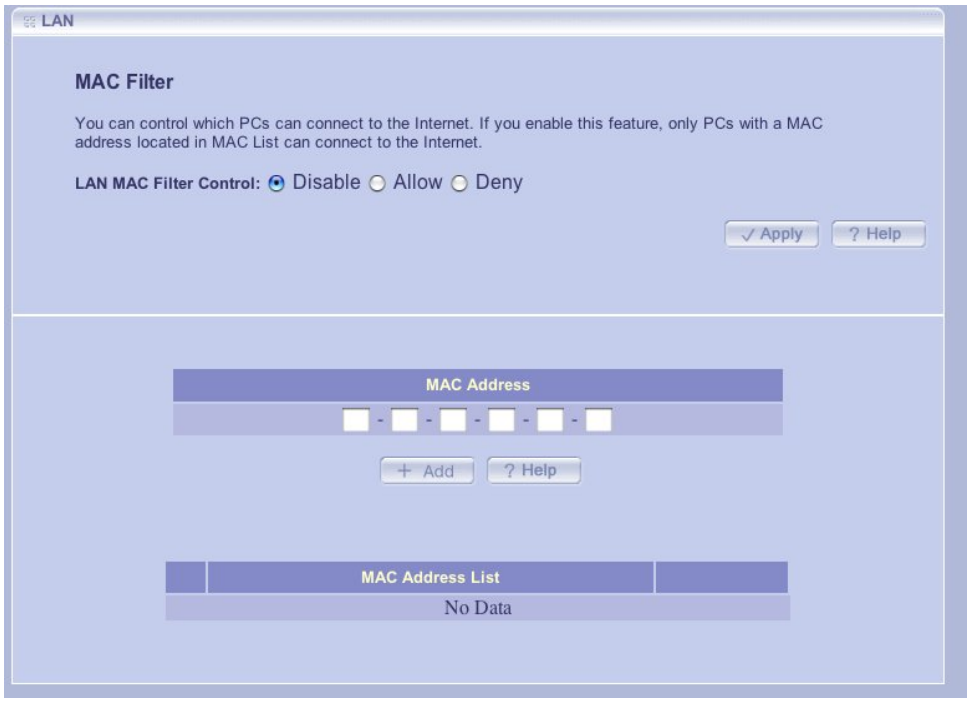
This page lists the IP addresses that have been assigned by this router's DHCP server.



- **Release All:** Click on this button to release all the assigned IP addresses.
- **Release:** Click on this button to release a specific IP address.
- **Static:** This indicates that the IP address is static and cannot be released.
- **Refresh:** Click on this button to refresh the table.

4.4.5 MAC Filter

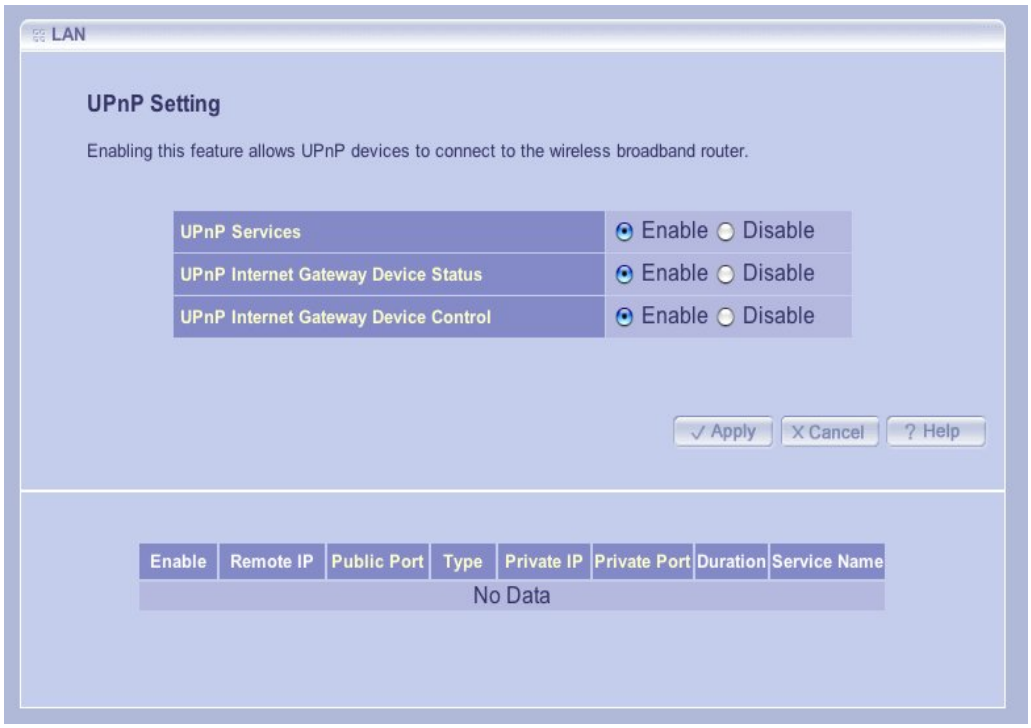
This page allows you to control access to the router by filtering MAC addresses.


LAN
MAC Filter
You can control which PCs can connect to the Internet. If you enable this feature, only PCs with a MAC address located in MAC List can connect to the Internet.
LAN MAC Filter Control: Disable Allow Deny
Apply
Help
MAC Address
Add
Help
MAC Address List
No Data

- **LAN MAC Filter Control:** Select **Disable**, **Allow**, or **Deny**.
  - **Disable:** This option will disable the MAC filter control.
  - **Allow:** This option will allow the specified MAC addresses to access the router. All other MAC addresses will be denied access.
  - **Deny:** This will deny the specified MAC addresses access to the router. But all other MAC addresses will be allowed access.
- Click on the **Apply** button to make the selection.
- **MAC Address**: Enter the MAC address into this field and click on the **Add** button.

4.4.6 UPnP Setting

This page allows you to control to the UPnP (Universal Plug-and-Play) settings. UPnP is a technology that offers seamless operation of voice messaging, video messaging, games, and other applications that are UPnP compliant. Those applications usually require the router's firewall to be configured in specific way. With UPnP support, those applications have the ability to communicate with the router, basically "telling" the router which why it needs the firewall configured.



- **UPnP Services:** Choose to **Enable** or **Disable** this service.
- **UPnP Internet Gateway Device Status:** Choose to **Enable** or **Disable**. By enabling this, the PC will keep polling the router's status and display packet information. This will increase the network's load affect the performance and compromise security.
- **UPnP Internet Gateway Device Control:** Choose to Enable or Disable. By enabling this, the UPnP application will be allowed to configure the

settings of the router.

- Click on the **Apply** button to make the selection.

4.5 Wireless Settings

Click on the **Wireless** button on the top navigation bar to view the options available for the wireless settings.

The Wireless menu includes the following options and each one is described in this section: SSID & Channel, Radio Setting, Authentication & Encryption, Wireless Bridge, Associated Client List, and Association Control.

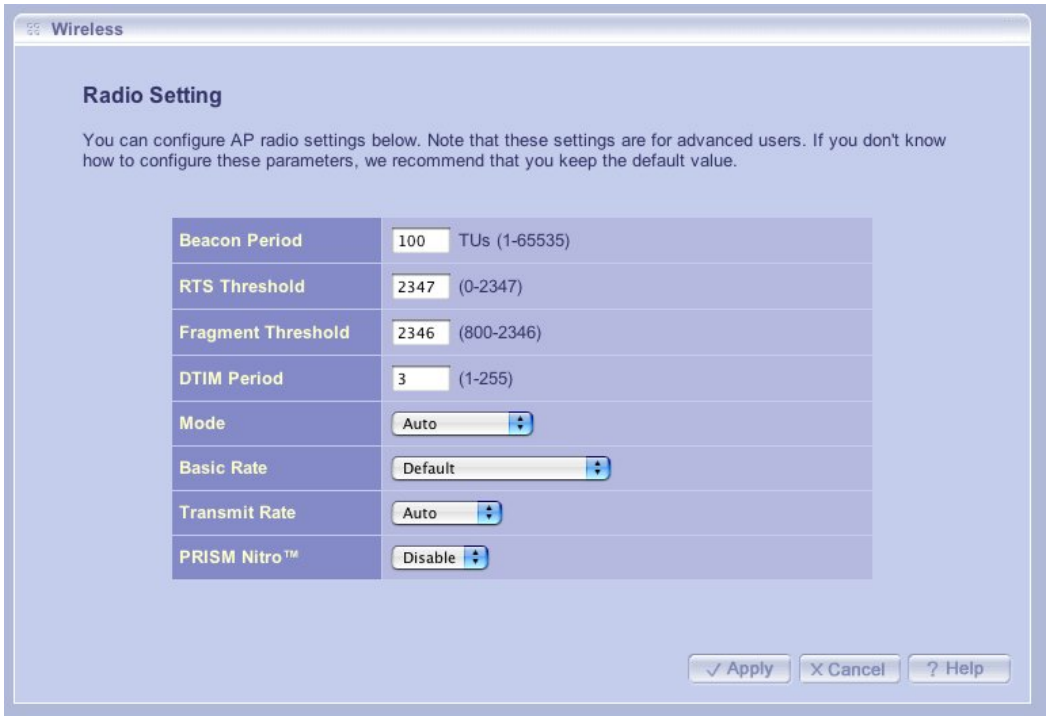
4.5.1 SSID & Channel

This page allows you to set the SSID and operating channel of the router.

- **SSID**: Enter the SSID (Service Set Identifier) which is the network name (by default: default). This is case-sensitive and cannot exceed 32 characters. All wireless devices on the network must use the same SSID.
- **Channel**: Select a channel number from the drop-down list. All wireless devises on the network must use the same channel. If you are experiencing interference, try a different channel.
- **Accept Broadcast SSID**: Place a check in this box if you would like to broadcast the SSID of the router. This will allow all devices on the network to detect the router.
- Click on the **Apply** button to make the selection.

4.5.2 Radio Setting

This page allows you to configure the radio's advanced features. If you don't know how to configure these settings, it's recommended to leave these parameters at their default settings. Modifying these settings can affect the performance of the router.



- **Beacon Period:** The default value is ***100 milliseconds***. This value refers to the frequency interval that the router broadcasts a beacon to synchronize the wireless network. As broadcasting beacon do require additional bandwidth, lowering this value too much may adversely affect the wireless performance.
- **RTS Threshold:** The default value is ***2347 bytes***. This value refers to the packet size at which the router issues an RTS (Request-to-Send) frame to a receiving station. Any frames larger than the specified threshold must be transmitted following the RTS/CTS handshake exchange mechanism. After receiving and RTS, the wireless stations responds with a CTS (Clear-to-Send) frame to acknowledge the right to begin data transmission. This RTS/CTS mechanism is used to minimize collisions among wireless stations.
- **Fragment Threshold:** The default value is ***2346 bytes***. This value refers to the size at which a packet is divided into smaller pieces that are transmitted separately to the receiving wireless stations. If there is a high packet error rate, you may need to adjust this value to find the best performance.
- **DTIM Period:** The default value is ***1 beacon period***. This value refers to

the time interval at which the router broadcasts a DTIM (Delivery Traffic Indication Message) to inform clients in power saving mode to wake up for listening to broadcast and multicast messages.

- **Mode:** The default value is ***auto***. If you have both 11b and 11g clients on your network, use the auto mode. You can also select **802.11g only** from the drop-down list if you want to prevent 11b clients from accessing the network. You may also select **802.11b only** if you want to allow only 11b clients.
- **Basic Rate:** The default rate is ***default***. The Basic Rate is not the same as the Transmission Rate, but a series of rates that the router broadcasts to clients to make the aware of what rate they can transmit at. With the default setting the router will automatically transmit at the best rate. You may select the other option **(1, 2, 5.5, 11, 6, 12, 24 Mbps)** from the drop-down list.
- **Transmit Rate:** The default rate is ***auto***. Using the default setting, the router will enable auto-fallback and will automatically select the best possible data rate for transmission. You may select another transmission rate from the drop-down list.
- **Prism Nitro™:** The default value is ***disable***. Enabling this mode should improve the network performance, either 3 times faster data rates in mixed mode environment where both 11b and 11g clients exist, or 50% more data throughput in 11g-only environment.
- Click on the **Apply** button to make the selection.

4.5.3 Authentication & Encryption

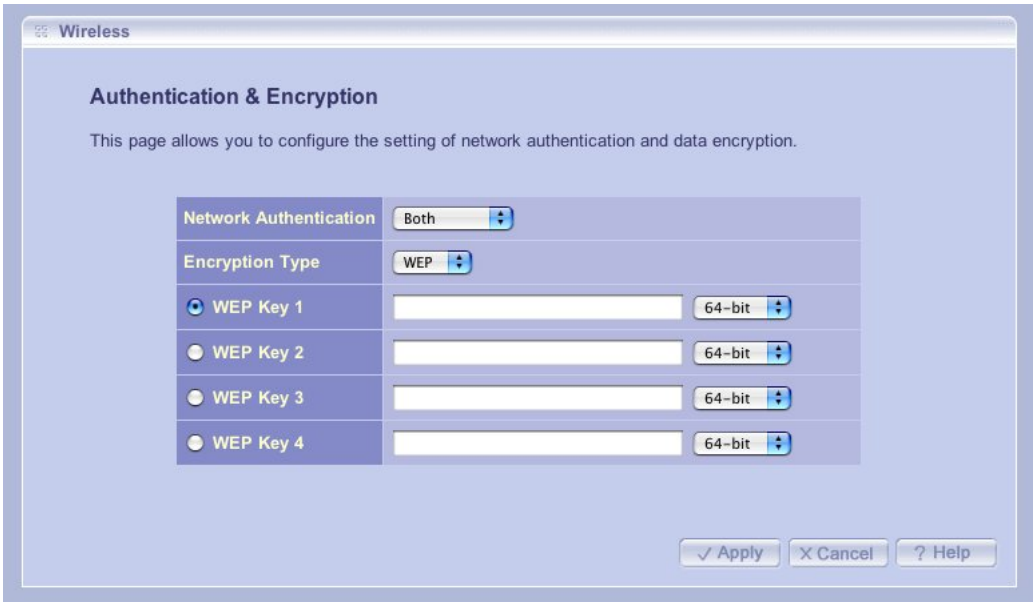
This page allows you to configure and manage the security of the router through different authentication and encryption methods. Each method is described is this section.

Authentication	Encryption	WEP Key 1 ~ 4
Open or Shared Key	None WEP 64-bits WEP 128-bits	Not Required 10 HEX 26 HEX
Shared Key	WEP 64-bits WEP 128-bits	10 HEX 26 HEX
WPA	TKIP	Not Required
802.1x	None WEP 64-bits WEP 128-bits	Not Required 10 HEX 26 HEX

4.5.3.1 Open & Shared Key Authentication without Encryption

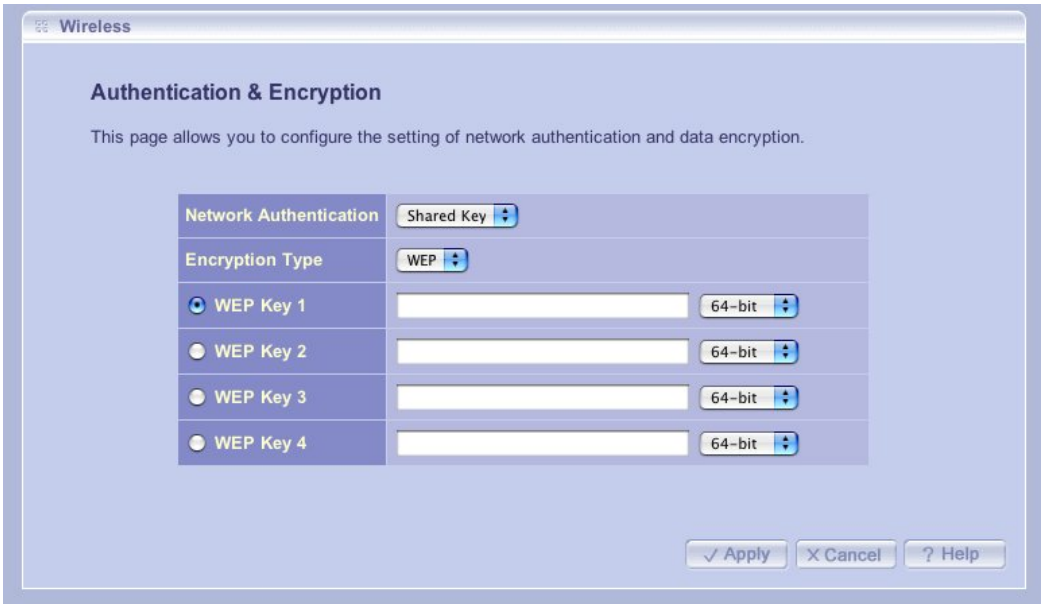
- **Network Authentication:** Select **Both** from the drop-down list. Using this setting the router will switch between **Opened** and **Shared** authentication types, based on the client's request.
  - **Open:** This allows any wireless station to access the router without asking a shared secret key. But the wireless station can communicate only if its WEP key matches with the routers.
  - **Shared Key:** This works only if the WEP key option is turned ON. It requires a wireless station providing a shared key to be authenticated by the router. If the shared key is correct, the wireless station will be able to access the router.
- **Encryption Type:** Select **None** from the drop-down list. This setting disables encryption.
- Click on the **Apply** button to make the selection.

4.5.3.2 Open & Shared Key Authentication with WEP Encryption



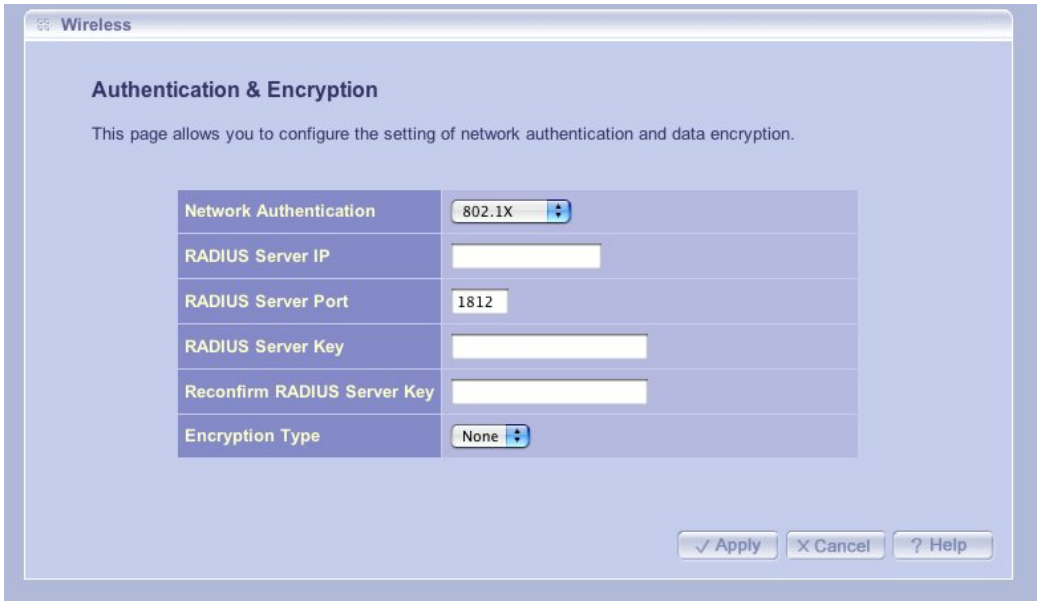
- **Network Authentication:** Select **Both** from the drop-down list. Using this setting the router will switch between **Opened** and **Shared** authentication types, based on the client's request.
  - **Open:** This allows any wireless station to access the router without asking a shared secret key. But the wireless station can communicate only if its WEP key matches with the routers.
  - **Shared Key:** This works only if the WEP key option is turned ON. It requires a wireless station providing a shared key to be authenticated by the router. If the shared key is correct, the wireless station will be able to access the router.
- **Encryption Type:** Select **WEP** from the drop-down list. This setting allows you to select one of two encryption levels. For each encryption type it is possible to enter up to 4 WEP keys.
  - **64-bit WEP Key**: This option allows you to manually enter 5 digits of alphanumeric characters.
  - **128-bit WEP Key**: This option allows you to manually enter 13 digits of alphanumeric characters.
- Click on the **Apply** button to make the selection.

4.5.3.3 Shared Key Authentication with WEP Encryption



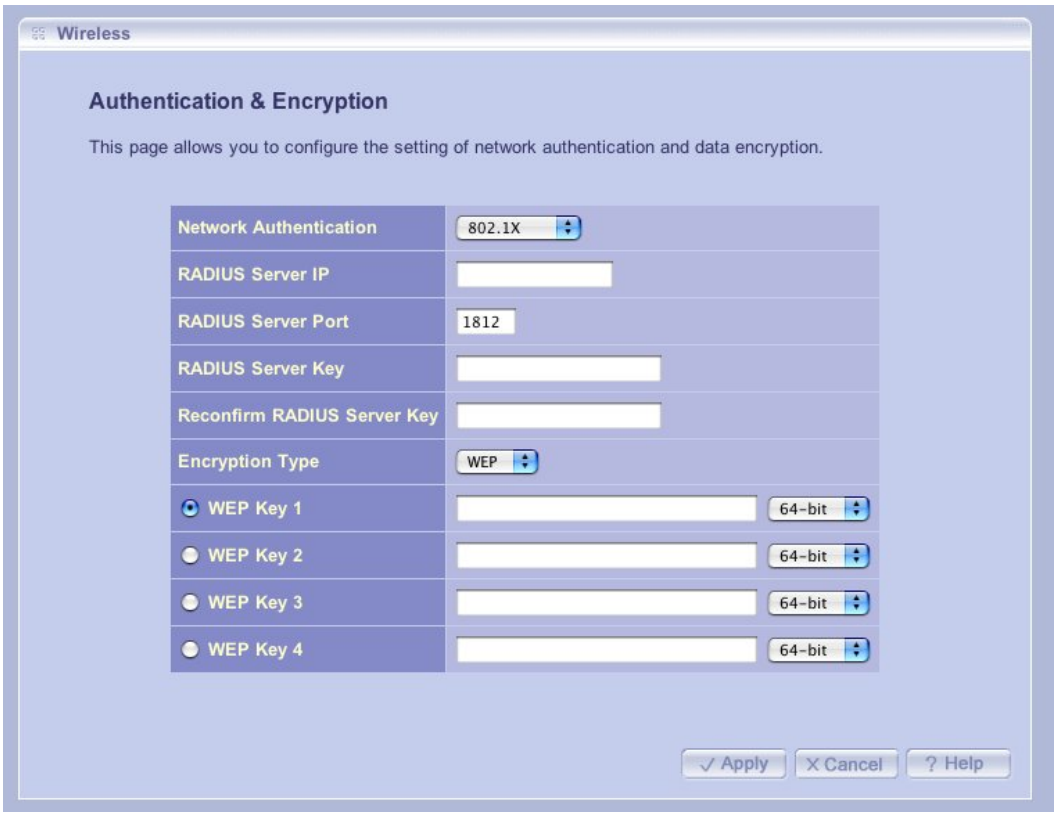
- **Network Authentication:** Select **Shared Key** from the drop-down list. This works only if the WEP key option is turned ON. It requires a wireless station providing a shared key to be authenticated by the router. If the shared key is correct, the wireless station will be able to access the router.
- **Encryption Type:** Select **WEP** from the drop-down list. This setting allows you to select one of two encryption levels. For each encryption type it is possible to enter up to 4 WEP keys.
  - **64-bit WEP Key**: This option allows you to manually enter 5 digits of alphanumeric characters.
  - **128-bit WEP Key**: This option allows you to manually enter 13 digits of alphanumeric characters.
- Click on the **Apply** button to make the selection.

4.5.3.4 802.1X Authentication without Encryption



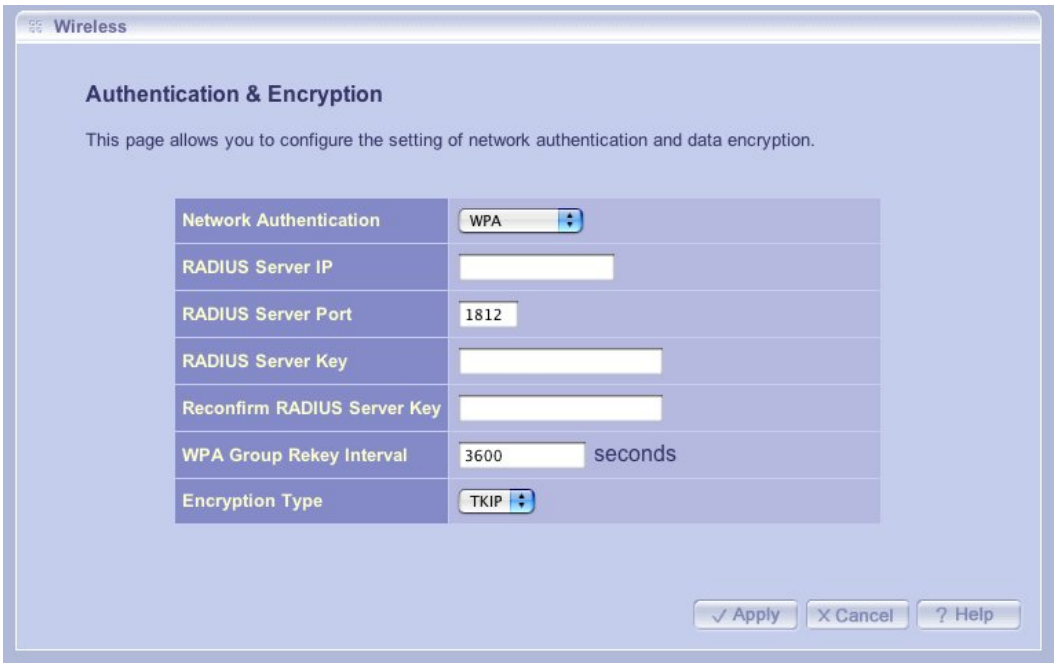
- **Network Authentication:** Select **802.1X** from the drop-down list if there is a RADIUS server on your network.
- **RADIUS Server IP:** Enter the IP address of the RADIUS server.
- **RADIUS Server Port:** Enter the port number of the RADIUS server. The default is ***1812***.
- **RADIUS Server Key:** Enter the Shared Secret Key of the RADIUS server.
- **Reconfirm RADIUS Server Key:** Re-type the Shared Secret Key of the RADIUS server.
- **Encryption Type:** Select **None** from the drop-down list to disable encryption.
- Click on the **Apply** button to make the selection.

4.5.3.5 802.1X Authentication with WEP Encryption



- **Network Authentication:** Select **802.1X** from the drop-down list if there is a RADIUS server on your network.
- **RADIUS Server IP:** Enter the IP address of the RADIUS server.
- **RADIUS Server Port:** Enter the port number of the RADIUS server. The default is ***1812***.
- **RADIUS Server Key:** Enter the Shared Secret Key of the RADIUS server.
- **Reconfirm RADIUS Server Key:** Re-type the Shared Secret Key of the RADIUS server.
- **Encryption Type:** Select **WEP** from the drop-down list. This setting allows you to select one of two encryption levels. For each encryption type it is possible to enter up to 4 WEP keys.
  - **64-bit WEP Key**: This option allows you to manually enter 5 digits of alphanumeric characters.
  - **128-bit WEP Key**: This option allows you to manually enter 13 digits of alphanumeric characters.
- Click on the **Apply** button to make the selection.

4.5.3.6 WPA Authentication with TKIP Encryption



- **Network Authentication:** Select **WPA** from the drop-down list if there is a RADIUS server on your network. WPA (Wi-Fi Protected Access) is used in a Pre Shared Key mode that does not require an authentication server. Access to the Internet and the rest of the wireless network services is allowed only if the pre-shared key of the computer matches that of the Access Point. This approach offers the simplicity of the WEP key, but uses stronger TKIP encryption.
- **RADIUS Server IP:** Enter the IP address of the RADIUS server.
- **RADIUS Server Port:** Enter the port number of the RADIUS server. The default is ***1812***.
- **RADIUS Server Key:** Enter the Shared Secret Key of the RADIUS server.
- **Reconfirm RADIUS Server Key:** Re-type the Shared Secret Key of the RADIUS server.
- **WPA Group Rekey Interval:** The default value is ***3600 seconds***. This value is the time after which the router changes to a new work group key.
- **Encryption Type:** TKIP is the only option available.
- Click on the **Apply** button to make the selection.

4.5.3.7 WPA-PSK Authentication with TKIP Encryption

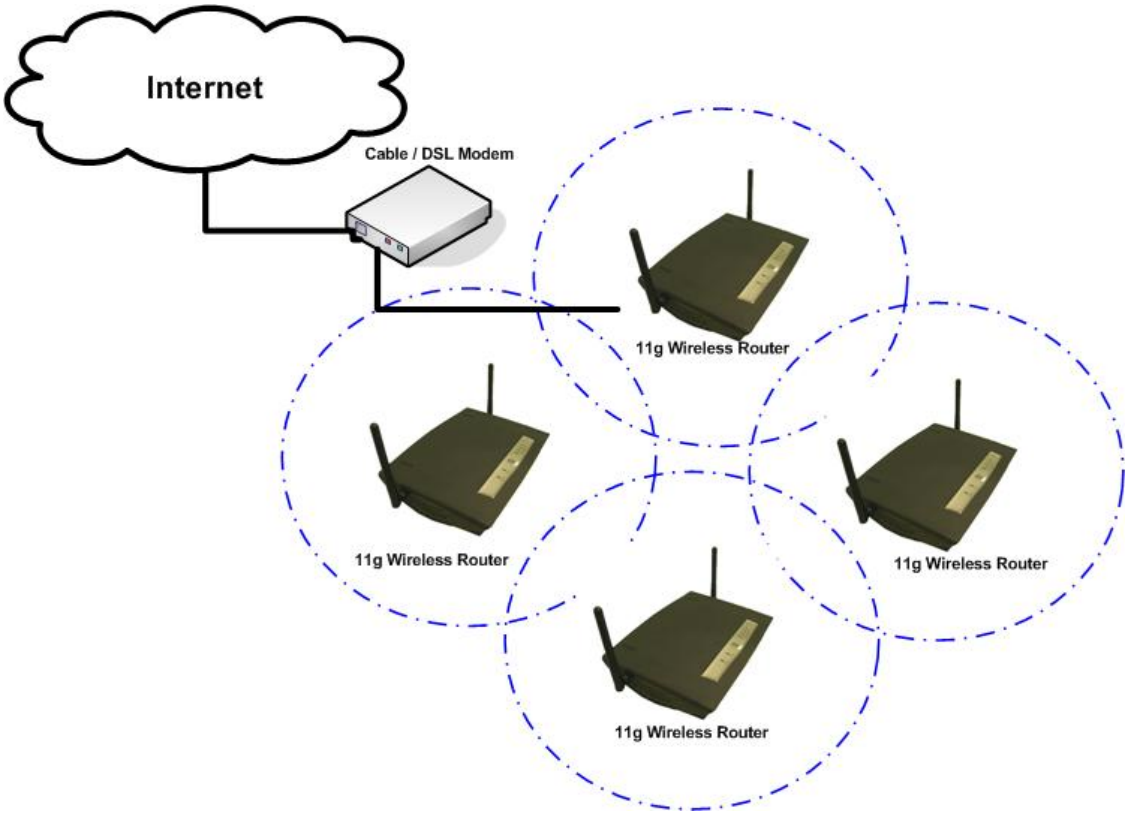
- **Network Authentication:** Select **WPA-PSK** from the drop-down list if there is a RADIUS server on your network. WPA (Wi-Fi Protected Access) is used in a Pre Shared Key mode that does not require an authentication server. Access to the Internet and the rest of the wireless network services is allowed only if the pre-shared key of the computer matches that of the Access Point. This approach offers the simplicity of the WEP key, but uses stronger TKIP encryption.
- **WPA Pre-Shared Key:** Enter the WPA Pre-Shared key and then select **Passphrase** or **HEX** from the drop down list.
- **Confirm WPA Pre-Shared Key**: Re-type the WPA Pre-Shared key and then select **Passphrase** or **HEX** from the drop down list.
- **WPA Group Rekey Interval:** The default value is ***3600 seconds***. This value is the time after which the router changes to a new work group key.
- **Encryption Type:** TKIP is the only option available.
- Click on the **Apply** button to make the selection.

4.5.4 Wireless Bridge (WDS)

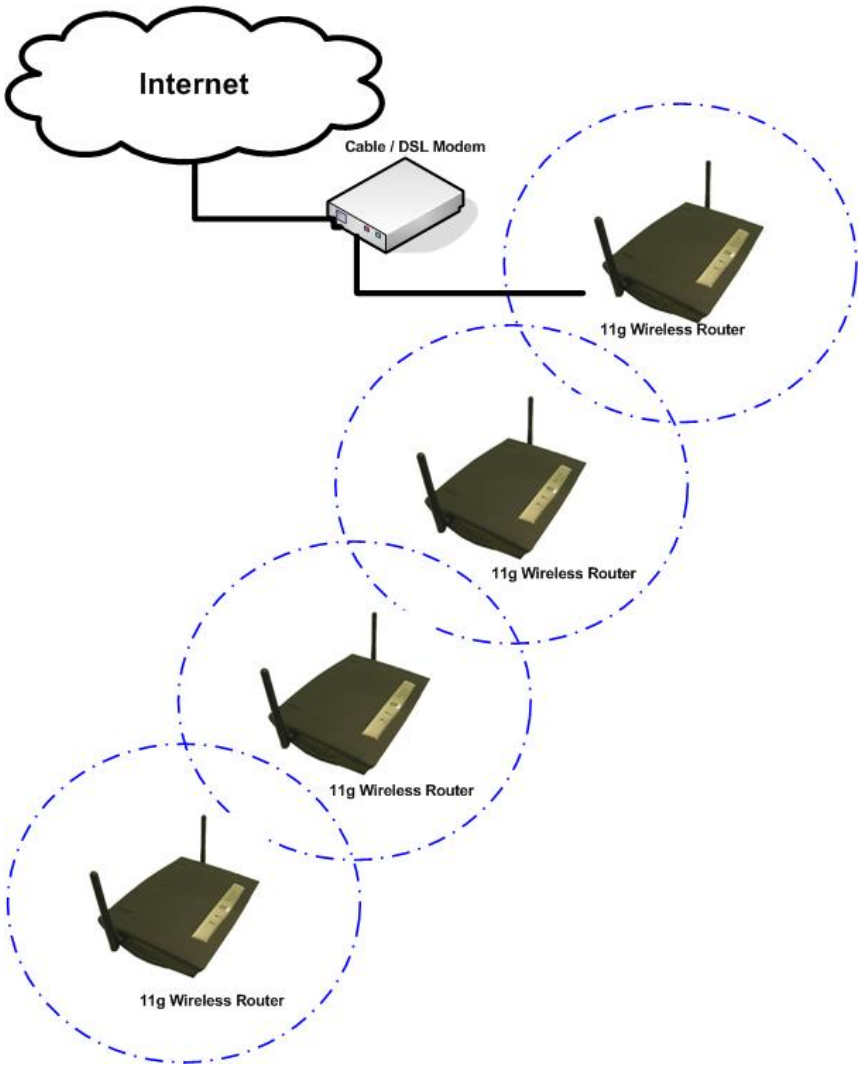
This page allows you to configure the router as a Wireless Bridge or WDS (Wireless Distribution System). This option allows you to extend the range of your network infrastructure by connected other Wireless Bridges with each other wirelessly.
Note: All Wireless Bridges must operate on the same channel and can maintain up to 4 other Wireless Bridges.

The following are examples of two topologies: Star & Chain

Star Topology using WDS



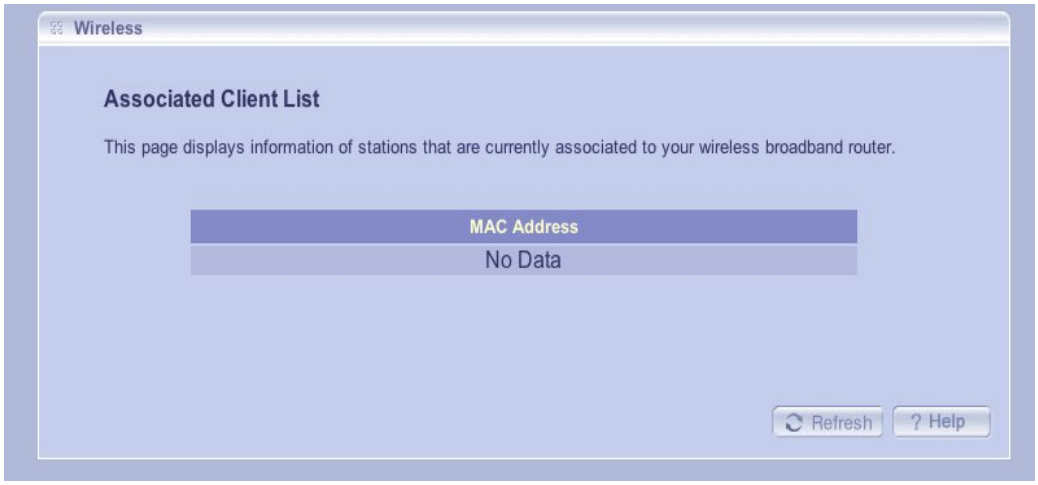
Chain Topology using WDS



- **Encryption Type:** Select **Enable** if you would like to use the router as a wireless bridge (WDS).
- **WDS Only:** Place a check in this box if you would like the router to work as a WDS only. This mode will not allow any clients to associate with the router.
- Click on the **Apply** button to make the selection.
- **WDS MAC Address**: Enter the MAC address of the other WDS routers, and then click on the **Add** button.

4.5.5 Associated Client List

This page displays the MAC addresses of the associated clients.



4.5.6 Association Control

This page allows you to control access to the router by filtering MAC addresses.

Wireless
Association Control
This page allows you to control which PCs can connect to the wireless LAN. If you enable this feature, only PCs with a MAC address located in Association Control List can connect to the wireless LAN.
Wireless Access Control : Disable Allow Deny
Apply
Help
MAC Address
Add
Help
MAC Address
No Data

- **Wireless Access Control:** Select **Disable**, **Allow**, or **Deny**.
  - **Disable:** This option will disable the wireless accessr control.
  - **Allow:** This option will allow the specified MAC addresses to access the router. All other MAC addresses will be denied access.
  - **Deny:** This will deny the specified MAC addresses access to the router. But all other MAC addresses will be allowed access.
- Click on the **Apply** button to make the selection.
- **MAC Address**: Enter the MAC address into this field and click on the **Add** button.

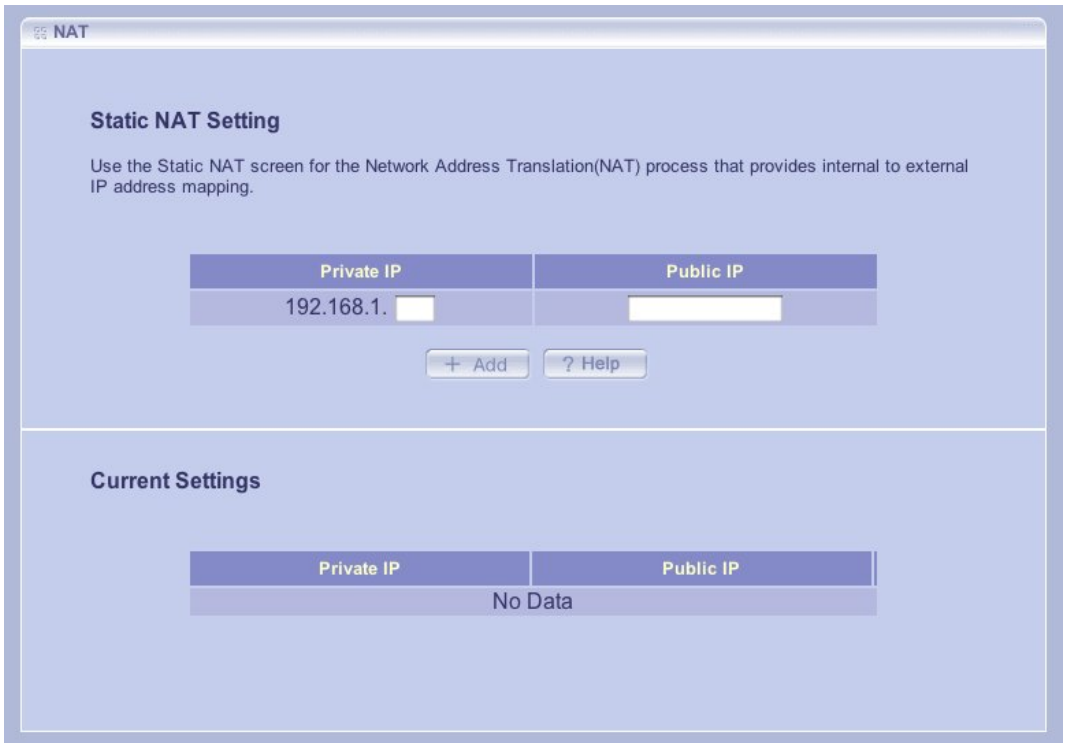
4.6 NAT Settings

Click on the **NAT** button on the top navigation bar to view the options available for the NAT settings.

The NAT (Network Address Translation) menu includes the following options and each one is described in this section: Static NAT setting, Virtual Server, Special Applications.

4.6.1 Static NAT Setting

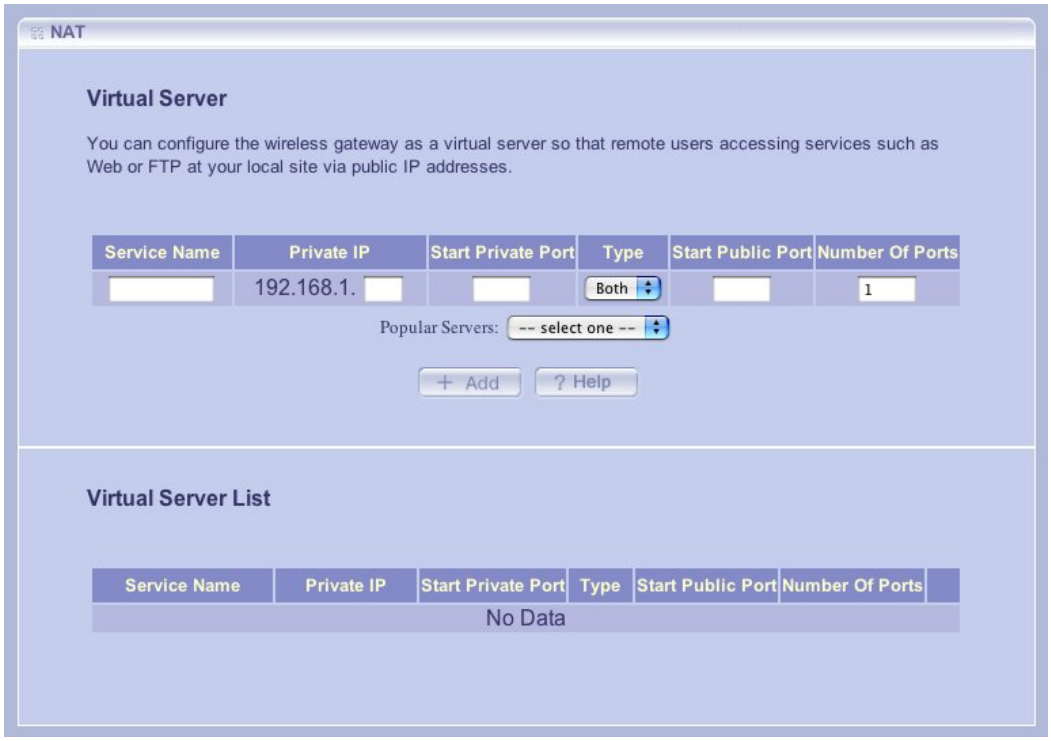
This page allows you to configure the router's virtual server setting based on **IP forwarding**. Using the IP forwarding setting, all Internet requests for specified public IP addresses will be forwarded to a certain PC with the corresponding private IP address.



- **Private IP**: Enter the private IP address.
- **Public IP:** Enter the corresponding pubic IP address, and then click on the **Add** button.

4.6.2 Virtual Server

This page allows you to configure the router's virtual server setting based on **Port forwarding**. This feature helps you set up a server on your private network that can be accessed by Internet users. Using port forwarding, all Internet requests for a specified public IP, based on their ports, will be forwarded to a certain PC with the correspondent private port.

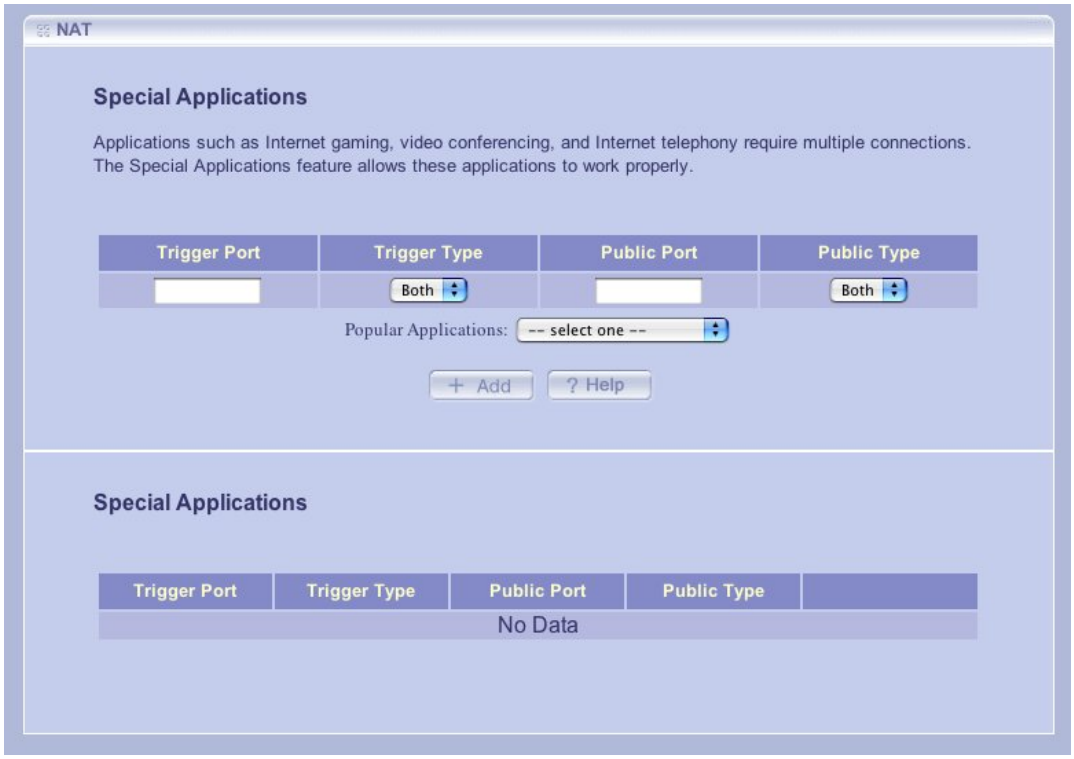


- **Popular Servers**: You may select a server from the drop-down list (HTTP, FTP, POP3, etc). This will automatically fill in the fields, except for the private IP, which needs to be filled in manually.
- **Service Name**: Manually specify a name for the service.
- **Private IP**: Enter the private IP address.
- **Start Private Port**: Enter the port number where the requests will arrive.
- **Type**: Select a protocol form the drop-down list. TCP, UDP, or both.
- **Start Public Port:** Enter the port number from where requests will be forwarded.
- **Number of Ports:** Enter the number of ports
- Click on the **Add** button.

4.6.3 Special Applications

This page allows you to configure the router for special applications such as Instant Messaging or some Internet games whose outgoing ports must differ from incoming ports.

When you run a PC application to access the Internet, it typically initiates communication with another computer on the Internet. In some special applications, the computer on the Internet also initiates communication with your PC. If you use such applications on your PC behind your router, then you need to configure the router to support **Port Triggering** to perform those applications in a proper manner.



- **Popular Applications**: You may select a popular application from the drop-down list (StarCraft, WarCraft, AIM). This will automatically fill in the fields.
- **Trigger Port**: Manually specify the range of port numbers used by the application for outbound data. Refer to the application's user manual for its port numbers.
- **Trigger Type**: Select a protocol form the drop-down list. TCP, UDP, or both.
- **Public Port:** Manually specify the range of port numbers used by the application for inbound data. Refer to the application's user manual for its port numbers.
- **Public Type**: Select a protocol form the drop-down list. TCP, UDP, or both.
- Click on the **Add** button.

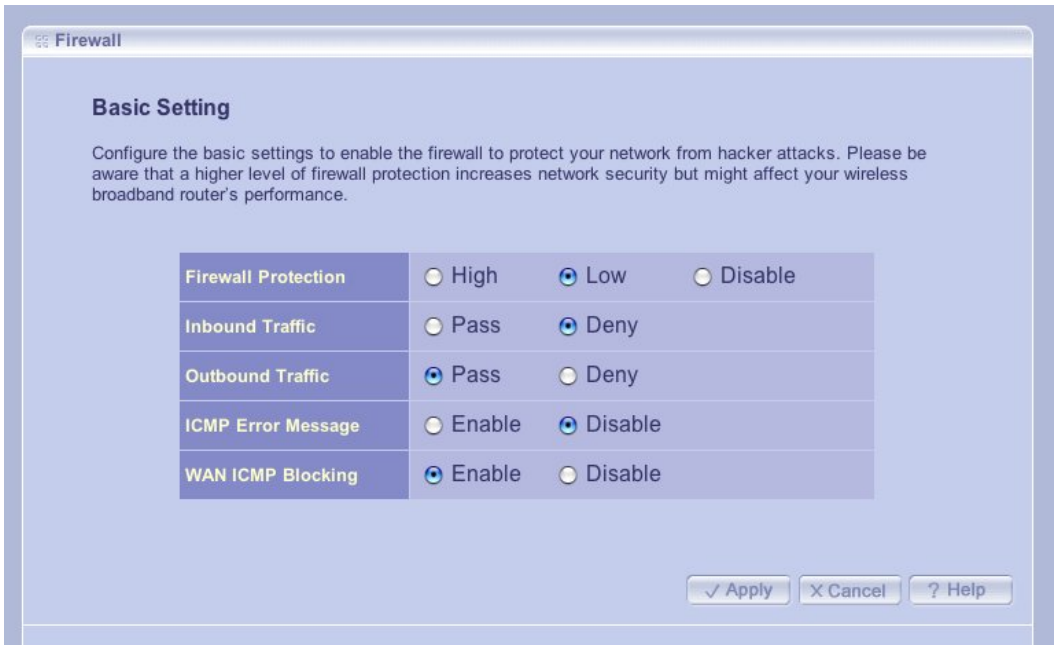
4.7 Firewall Settings

Click on the **Firewall** button on the top navigation bar to view the options available for the firewall settings. The router features powerful and flexible firewall protection to keep your network secure. You can configure the strength of the firewall protection at a high or low level. If you are an advanced user, you can configure firewall policies depending on your needs.

The Firewall menu includes the following options and each one is described in this section: Basic Setting, Service Filters, Policies, Notification, and Virtual DMZ.

4.7.1 Basic Setting

This page allows you to configure the basic settings of the firewall. Please be aware that a higher level of firewall protection will increase the network security but may decrease the wireless performance of the router.

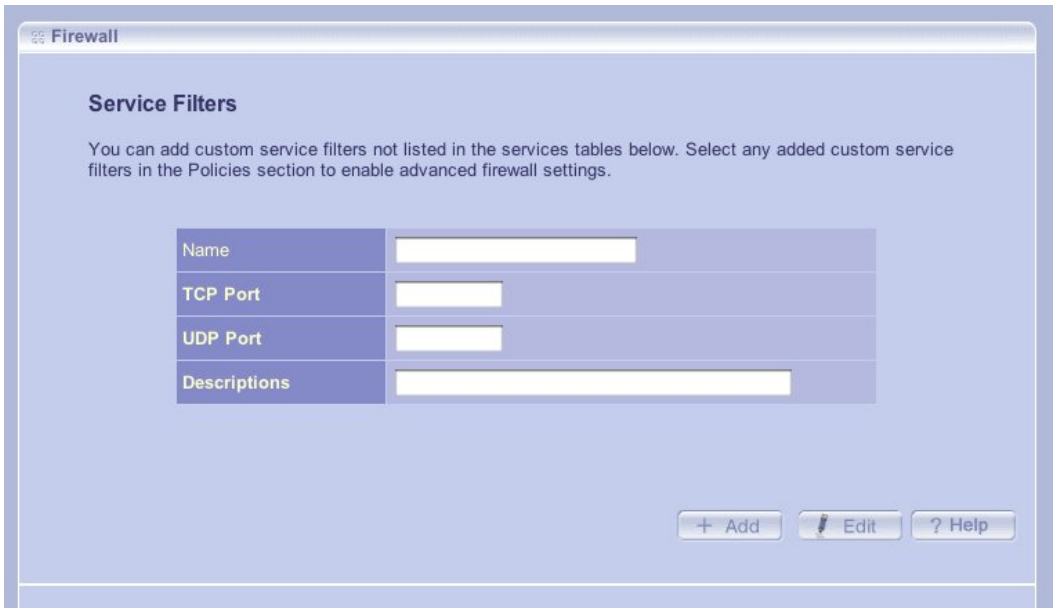


- **Firewall Protection:** Select **High**, **Low**, or **Disable**. Select **High** if your bandwidth is greater than 2 Mbps. This protects your network in high-level security, but causes heavy network loads on the router. Select **Low** if your bandwidth is less then 2 Mbps. This protects your network in low-level security and causes only small network loads on the router. Select **Disable** to turn OFF the firewall feature.
- **Inbound Traffic:** Choose to allow or deny all inbound traffic.

- **Outbound Traffic:** Choose to allow or deny all outbound traffic.
- **ICMP Error Message:** Choose to allow or deny all ICMP error messages.
- **WAN ICMP blocking:** Choose to allow or deny ICMP packets received from the Internet.
- Click on the **Apply** button to make the selection.

4.7.2 Service Filters

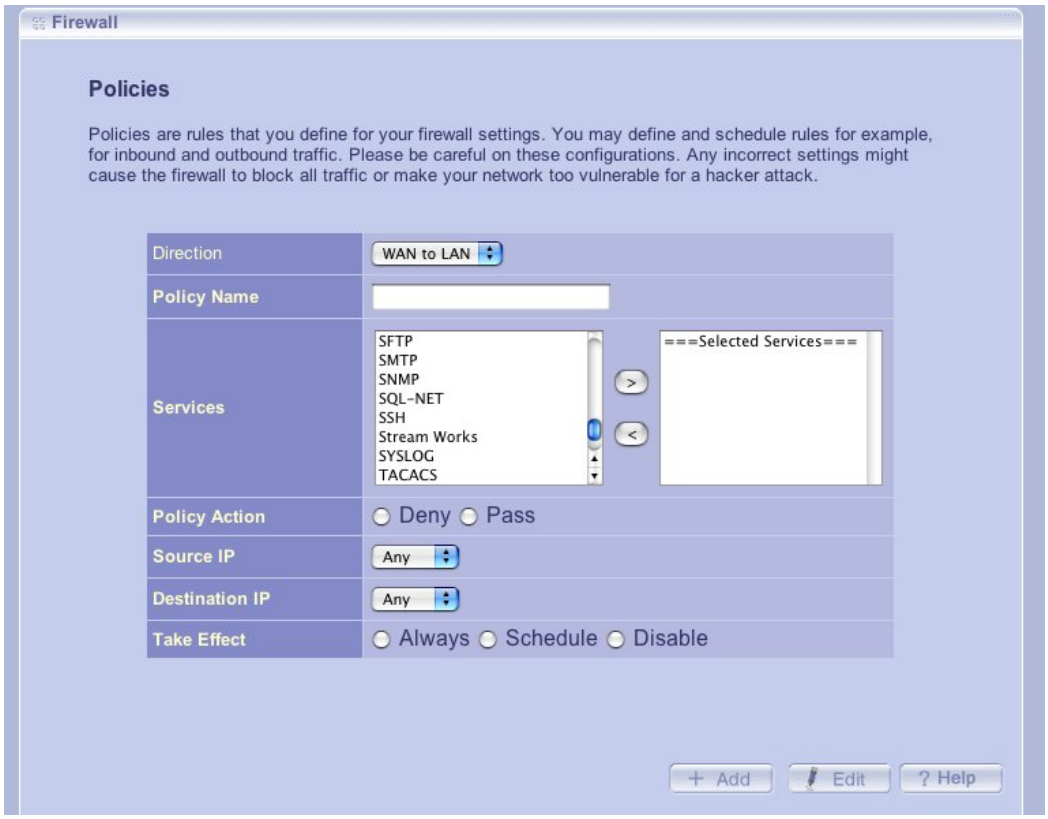
This page allows you to add custom service filters (up to 32 entries) which are not listed in the Well-Known Services list.


Firewall
Service Filters
You can add custom service filters not listed in the services tables below. Select any added custom service filters in the Policies section to enable advanced firewall settings.
Name
TCP Port
UDP Port
Descriptions
Add
Edit
Help

- **Name:** Enter a name for the custom service filter.
- **TCP / UDP Port:** Enter the port number for TCP or UDP.
- **Description:** Enter a description for the custom service filter.
- Click on the **Add** button.

4.7.3 Policies

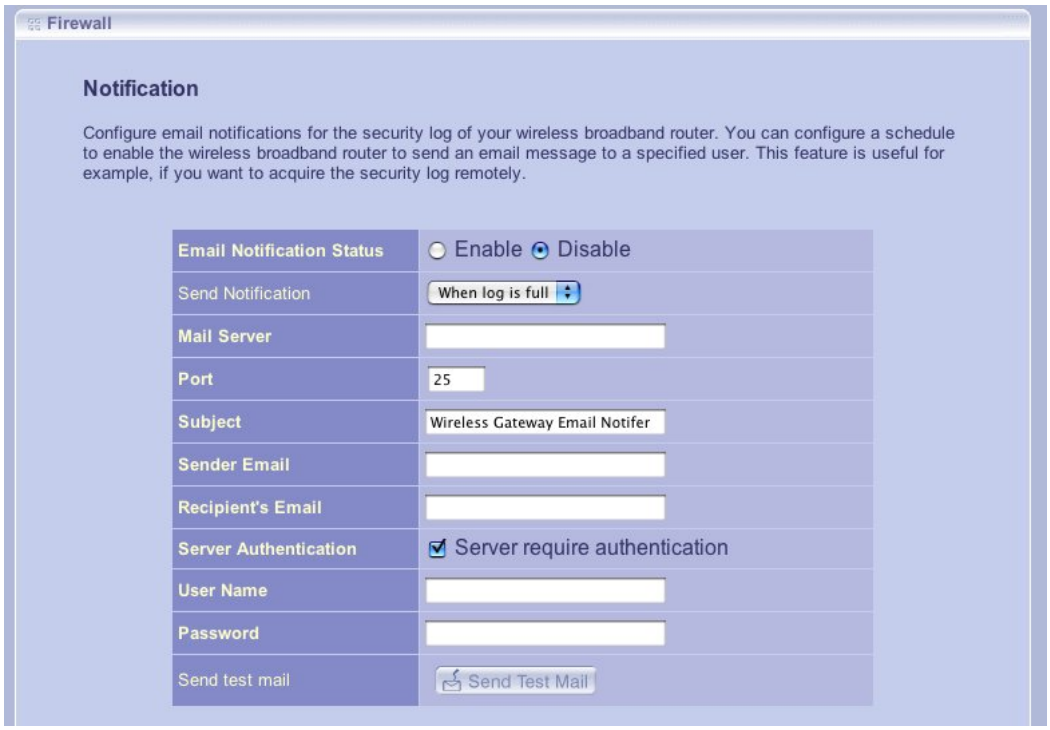
This page allows you to add polices to your router. You may define and schedule rules for example, for inbound and outbound traffic. Please be careful with these configurations. Any incorrect setting might cause the firewall to block all traffic or leave your network too vulnerable for hacker attacks.



- **Direction:** Select **WAN to LAN** (inbound) or **LAN to WAN** (outbound) from the drop-down list.
- **Policy Name:** Enter a name for the policy.
- **Services:** Select the services you would like to use from the list and then click on the **>** button. Click on the **<** button to remove a service from the list.
- **Policy Action:** Choose to allow or deny all data for the assigned services.
- **Source IP:** Select **Any**, **Single**, or **Range**, and then enter the IP address.
- **Destination IP:** Select **Any**, **Single**, or **Range**, and then enter the IP address.
- **Take Effect:** Select **Always**, **Schedule** or **Disable**. If you select Schedule, select the date and time to use this service.
- Click on the **Add** button.

4.7.4 Notification

This page allows you to configure email notifications for the security log of the router. You can configure a schedule to enable the router to send an email message to a specified user. This feature is useful if you want to acquire the security log remotely.


Firewall
Notification
Configure email notifications for the security log of your wireless broadband router. You can configure a schedule to enable the wireless broadband router to send an email message to a specified user. This feature is useful for example, if you want to acquire the security log remotely.
Email Notification Status
Enable
Disable
Send Notification
When log is full
Mail Server
Port
25
Subject
Wireless Gateway Email Notifer
Sender Email
Recipient's Email
Server Authentication
Server require authentication
User Name
Password
Send test mail
Send Test Mail

- **Email Notification Status:** Choose to Enable or Disable email notification status.
- **Send Notification:** Select from the drop-down list when the router should send out the notification. Options available are **Daily**, **Weekly**, **Monthly**, or **when log is full**.
- **Mail Server:** Enter the SMTP IP address of the mail server.
- **Port:** Enter the port number, the default is ***25***.
- **Subject:** Enter a description that will be shown in the subject line of the email message.
- **Sender Email:** Enter en email address that the recipient can reply to.
- **Recipient's Email:** Enter the email address that will receive this notification.
- **Server Authentication:** Place a check in this box if the mail server required authentication. Then enter the user name and password in the fields below.
- Click on the **Send Test Mail** to send out a test message using the configuration provided.

4.7.5 Virtual DMZ

This page allows you to configure the Virtual DMZ feature on the router. This feature enables the PC/Server on the LAN to be exposed to all users on the Internet, allowing unrestricted 2-way communication between the PC/Server and other Internet PC services. The PC/Server in the DMZ (De-Militarized Zone) will receive all connections and requests without any restrictions.

Firewall
Virtual DMZ
If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ.
Virtual DMZ Status
Enable
Disable
Public IP Address
0.0.0.0
Private IP Address
192.168.1.
Apply
Cancel
Help

- **Virtual DMZ Stats:** Choose to **Enable** or **Disable** Virtual DMZ.
- **Public IP Address;** This is automatically displayed.
- **Private IP Address:** Enter the IP address of the PC/Server that you would like to expose to the Internet.
- Click on the **Apply** button to make the selection.

Appendix A – Specifications

General	
Data Rates *	1,2,5.5,6,9,11,12,18,24,36,48,54 Mbps
Standards	IEEE802.11b/g, IEEE802.1x, IEEE802.3, IEEE802.3u
Compatibility	IEEE 802.11g/ IEEE 802.11b compliant
Power Requirements	USA: 12W/120Vin, 1A/12Vout Europe: 12W/230Vin, 1A/12Vout
Physical Interface	One 10/100Mbps RJ-45 for DSL/Cable modem Four 10/100Mbps RJ-45 Switch Port Reset Button
Status LEDs	4*LAN : Link/Activity 1*WAN : Link/Activity WLAN : Link/Activity Power : On/Off
Regulatory/ Safety	FCC Part 15, Class B R&TTE Directive 1999/5/EC EN 300 328 EN 301 489 EN 60950

RF Information	
Frequency Band	2.400～2.484 GHz
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation Technology	Orthogonal Frequency Division Multiplexing (OFDM) DBPSK @ 1Mbps DQPSK @2Mbps CCK @ 5.5 & 11Mbps BPSK @ 6 and 9 Mbps QPSK @ 12 and 18 Mbps 16-QAM @ 24 and 36 Mbps 64-QAM @ 48 and 54 Mbps
Operating Channels	11 for North America, 14 for Japan, 13 for Europe, 2 for Spain, 4 for France
Receive Sensitivity (Typical)	-89dBm @ 1Mbps -88dBm @ 6Mbps -79dBm @ 24Mbps -86dBm @ 2Mbps -87dBm @ 9Mbps -75dBm @ 36Mbps -85dBm @ 5.5Mbps -84dBm @ 12Mbps -70dBm @ 48Mbps

	-82dBm @ 11Mbps -82dBm @ 18Mbps -67dBm @ 54Mbps
Available transmit power (Depend on Different Countries' Regulation)	11b Mode : EIRP ≤ 19 dBm Output Power = 17 ± 1 dBm @11MHz 11g Mode : EIRP ≤ 15.5 dBm Output Power = 13 ± 1 dBm @54MHz
Antenna Gain	Peak Gain = 2 dBi Average Gain = 1.08 dBi (@ 2.45GHz, H-Plan)

Networking Information	
Topology	Infrastructure
Operation Mode	AP/ Router/ WDS Bridge
LAN	DHCP Server Static IP MAC Filter UPNP
WAN	Static IP DHCP Client PPPoE PPTP Clone MAC
NAT	Virtual server mapping IP address mapping ALG(Application Layer Gateway) support
Firewall	Blocking Ping ICMP Bolcking Access control list (MAC filtering from LAN & WLAN) TCP/IP/UDP/Port filtering DoS protection SPI (Stateful Packet Inspection) DMZ (Demilitarized Zone) Host
VPN Support	VPN pass-through (PPTP, L2TP)
Security	64/128 bit WEP Encryption WPA -- Wi-Fi Protected Access PSK (Pre share key) EAP-MD5/TLS/ TTLS authenticator support (RADUIS Client) TKIP MAC address filtering (WLAN) Hide SSID in beacons

Management	
Configuration	Web-based configuration (HTTP)
Firmware Upgrade	Upgrade firmware via web-browser
Administrator Setting	Administrator password change Idle time out
Reset Setting	Restore this Device Restore to Factory Default
System monitoring	Status and Statistics, Time Zone & NTP Client, Event Log, Email Alarm

Environment	
Temperature Range	0 to 50° C (32 °F to 122 °F) - Operating -40 to 70 ° C(-40 °F to158 °F) - Storage
Humidity (non-condensing)	15%～95% typical

Physical	
Dimensions	128(L)mm x 180(W)mm x 32(H)mm
Weight	295g

* Theoretical wireless signal rate based on IEEE standard 802.11a, b, g of chipset used. Actual throughput will vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice.

Appendix B – FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that
- to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment, and the antenna of this device must be integral.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with FCC RF Exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.